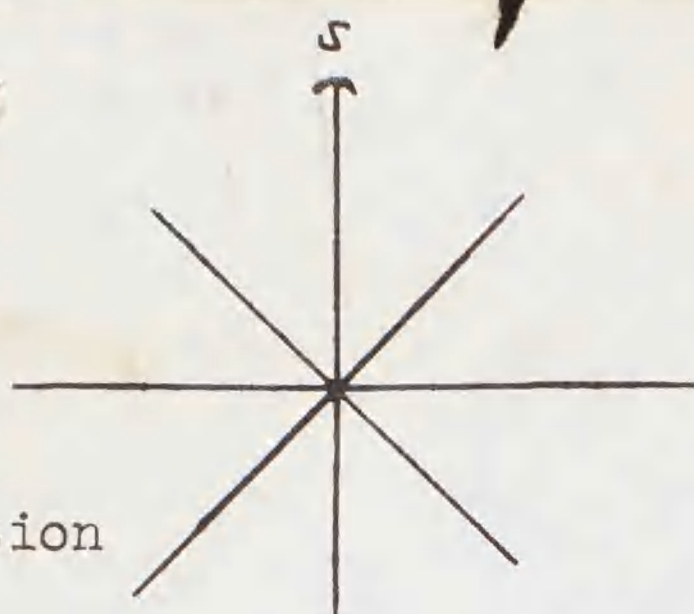


Ship
Direction



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHANDLER

Date 30 MAY 1967

Pg. # 1

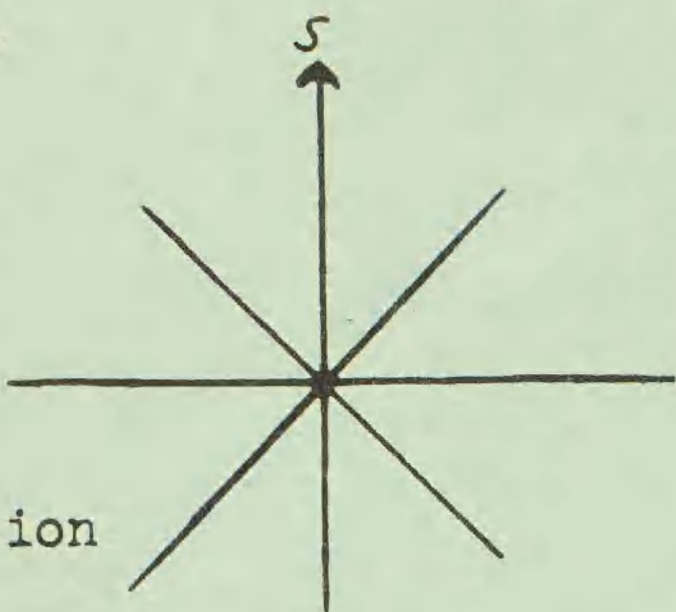
SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0600					SUNRISE BEGINS OBS.
0615	BFA	3	ce		1 w/white rump, 2 w/dk. following
0710	"	5	ce		0647 c/c 180 → 169 AT PT "A"
0725	"	6	ce		sitting on H ₂ O eating down on something
0730					
0800					} CHOW
0816	WRSP	1	ce		
0900					} NO OBS.
1000					
1010	WRSP	1	ce		
1013	"	1	ce		
1045	"	2	w		
1055	"	1	ce		
1100	"	3	ce		
1102	STORM PET	1	ce		small?
1111	WRSP	2	ce		
1115	"	1	ce		
1129	"	2			
1130					
1200					} CHOW
1205	WRSP	1	ce		
1215	"	1	ce		
1220	"	1	ce		
1225	"	1	ce		
1227	"	1	ce		
1228	"	1	ce		
1234	"	1	ce		
1236	"	1	ce		
1243	STORM PET.	1	ce		
1258	WRSP	1	ce		
1300					} NO OBS
1330					
1332	WRSP	2	ce		
1333	ARCTIC? Tern	1	N		appeared very gray below. distantish
1345	WRSP	1	ce		
1350	RED BILL TB.	1	N		hi, investigated flotsam
1351	WRSP	1	ce		
1353	WRSP	1	ce		
1405	WRSP	1	ce		
1415					
1430					} NO OBS.

30-40 KT.
FOLLOWING WIND
PTLY CLOUDY - CLEAR
20 FT SEAS
POOR OBS COND.

LOTS OF
VELLULA



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date 30 MAY 1967
Pg. # 2

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

1458	BFA	4 ⁺	ce		
1500					
1600					} NO OBS.
1612	WRSP	2	ce		
1630					
1700					} CHOW
1708	WRSP	1	ce		
1711	"	1	ce		
1742	"	1	ce		
1745	"	1	ce		
1755	POM JAEG	1	N		ad.
1758	WRSP	2	ce		
1800					
1900					} NO OBS.
1902	WRSP	1	ce		
1925	RED PHAL	4	NW		200' lead. phem. - 3, 1 winter seen on H ₂ O later (same)
1936	WRSP	1	SW		
1950	"	1	ce		
2000					CLOSE OBS. SUNSET 2006

2
1.5
1.0
1.5
1.0
1.5
1.5
1.0
1.0
8:75 HRS ✓
55 ✓

30 MAY TOTALS
BFA 6(MAX)
WRSP - 40
SPRSP - 2
ARG. T. - 1
RETB - 1
POMJ. - 1
RED PH - 4

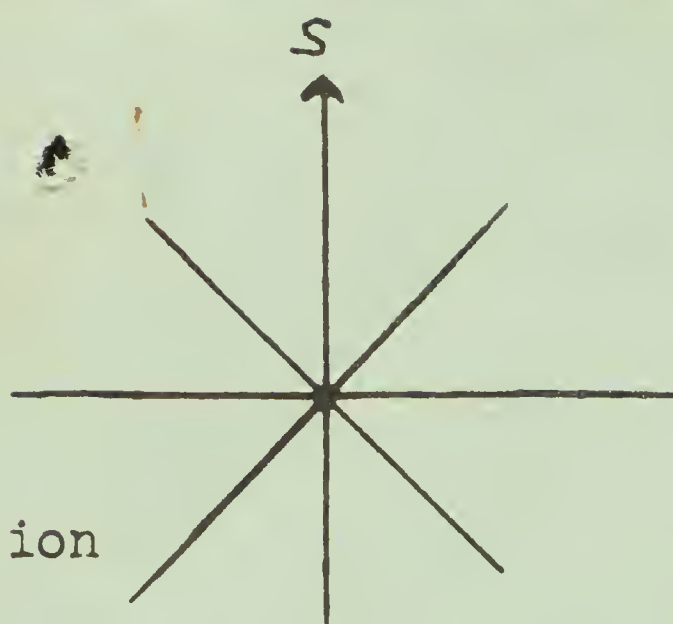
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Ship
Direction



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHANDLER

Date 31 May 1967

Pg. # 1

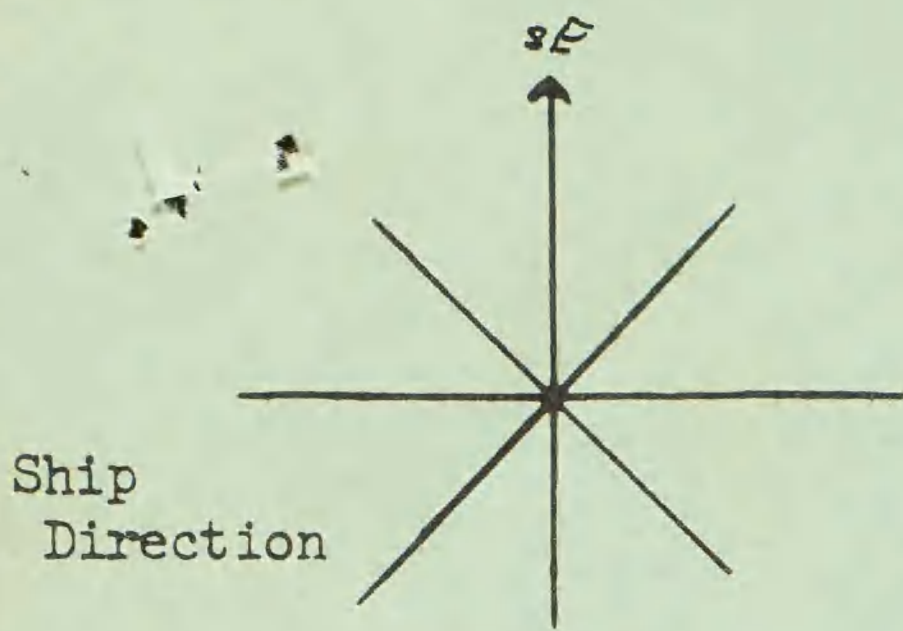
SPECIMEN

or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0600					SUNRISE - CONVENIENTLY, BEGIN OBS.
0615	BFA	1	ce		following dark rump.
0623	WRSP	1	ce		
0625	BFA	2	ce		following 1 dk., 1 lt.
0636	RED? PHAL.	7	W		high, probably this spec.
0649	PHAL. SP	2	W		Briggs
0651	PHAL. SP	2	ce		
0652	WRSP	1	ce		SITTING NORTHERN OR MORE LIKELY WINTER PLUM RED
0708					
0710	PHAL. SP.	1	ce		c/c 169 → 122
0712	RED PHAL.	1	ce		
0715	WRSP	1	ce		
0730					{ NO OBS.
0900					
0905	BFA	4	ce		3 dk. 1 lt.
0908	WRSP	1	ce		
0928	"	1	ce		
0938	WRSP	1	ce		darkest rump
0945					
1045					{ NO OBS.
1051	WRSP	1	ce		
1055	PHAL. SP	1	ce		
1100	WRSP	1	ce		
1102	RED PHAL	2			SITTING ON H ₂ O
1103	" "	4	SE		
1105	WRSP	1	ce		
1113	"	1	ce		
1115					{ CHOW NO OBS.
1200					
1202	WRSP	1	ce		
1205	"	1	ce		
1208	STORM PET	1	ce		
1212	WRSP	3	p		
	STORM PET	1	ce		dark rumped - Leach's?
1212	WRSP	2	ce		
1218	WRSP	1	ce		shot no picking
1225	WRSP	3	ce		
1230	BFA	6	ce		
	WRSP	5	ce		{ molting around garbage.
1237	WRSP	4	ce		
1245	"	1	ce		
1247	LEACH'S SP	1	ce	105056	1 coll R Chandler
1256	WRSP	1			
1300					CLOSE OBS.

1.50
75
1.50
1.00
1.50
1.50
1.75
1.50
1.00

LA



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

Date 31 May 1967

Pg. # 2

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

1430 RESUME OBS.

1430 WRSP 1 ce

STOMACH 1 ce

1432 WRSP 1 ce

1436 " 1 NW

1450 RED PHAL 1 W

landed ON H₂O breeding plum.

1500 } NO OBS.

1600 WRSP 1 ce

1613 " 1 ce

1615 " 1 ce

1618 " 1 ce

1630 } NO OBS

1715 WRSP 1 ce

1720 " 1 ce

1740 " 1 ce

1800 } NO OBS

1915 WRSP 1 ce

1917 " 1 ce

1937 SEAL SP.

1945 CLOSE OBS.

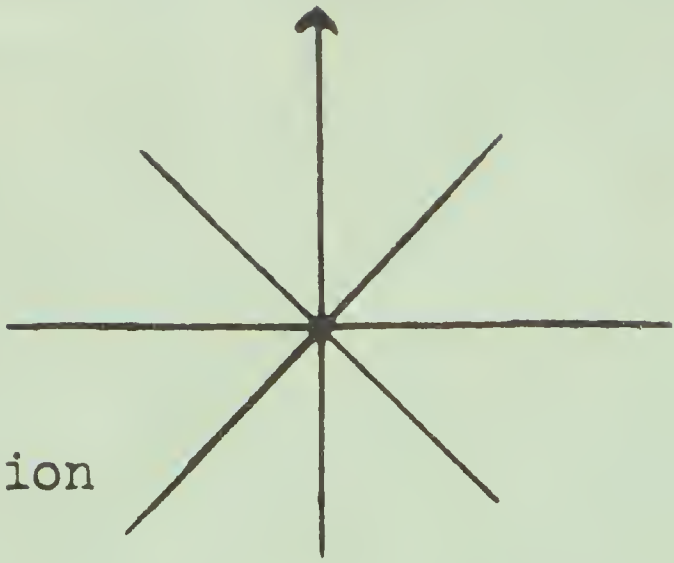
BFA-6

WRSP-43

RPA-15

ORSP-2

SP-1



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date 21-MAY-67
Pg. # _____

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

2145					WRSP - 8 (id)	} 25-30 mi
2200					PHALSP 2 (id) (7p)	
2230					ALCID - MURRELET TYPE - 1	

	WRSP	2-1-1-2-1-1-1-3-1-1-1-2-1-1-1			29 mi.
	? - (4) - 1-1-1				
	Ph	1-1			
	X? AL - 1				
	Brow B	2			

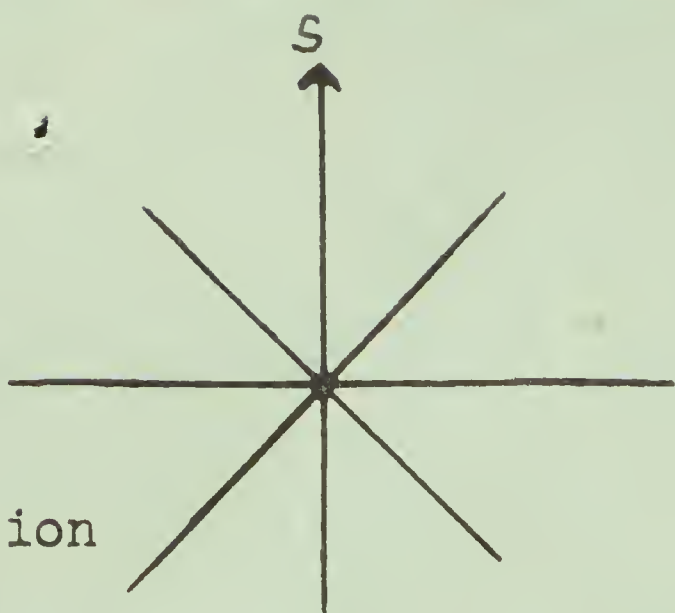
2250					18 mi
------	--	--	--	--	-------

2330					13 mi.
					WRSP - 1-2-2-2-5-5-2
					PHALSP - 1-1

2350					X - 1-1
					1 mi

1110-1125
25 mi X u. RBTB-2

Ship
Direction



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E
S OF GUADALUPE

SPECIMEN
or

OBSERVERS:

C. H. AN

Date 1 JUNE 1967
Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0615					BEGIN OBS. 520554 GUADALUPE INSIGHT ASTERN
0642	WRSP	1	ce		10 KT WIND - HI BROKEN OVERCAST SEAS CALM - 3'
0645					
0930					} NO OBS.
0932	WRSP	2	ce		
0937	"	5	ce		
0942	"	3	ce		
0944	"	2	ce		
0950	WRSP	3	ce		2 concerned in sexual? displaying flitting +
0952	"	3	ce		landing on H ₂ O close together wings spread.
0953	BFA	1	ce		
0954	WRSP	2	ce		
0957	"	2	ce		
1000					} NO OBS.
1015					TROPIC BIRDS REPORTED BY CAPT.
1016	SOOTY SHEAR	1	ce		
1017	WRSP	2	ce		
1018	WRSP	3	ce		
1025	WRSP	2	ce		
1026	"	2	ce		
C 1030	LEACH'S SP	1	ce	105057	1 coll. dark rump
1032	STORM PET	1	ce		large all dark BSP?
1033	WRSP	3	ce		
1045					} NO OBS.
C 1100	PTERODROMA	70±		105058	1 coll. sitting in flock on H ₂ O
1100	WRSP	20±			TURTLE DUNNUNG
1110					not all birds
1115	WRSP	15			
1125	SOOTY SHEAR	1			
1130	PTERODROMA	30±			along edge of water boundary
1140	WRSP	15±			
1143					large flying fish - 1st seen
1415					} NO OBS.
1418	COOK'S PET	1			
1416	WRSP	3			
1416					WHALE - large <u>Islandorca</u> ?
1417	STORM PET	14			13 dark leached 1 wisp.
1427	COOK'S PET	4			
	STORM PET	6			3 JITTER on H ₂ O
1429	STORM PET	15			SCATTERED
1430					CLOSE OBS.

WRSP - 29 -
BFA - 1 -

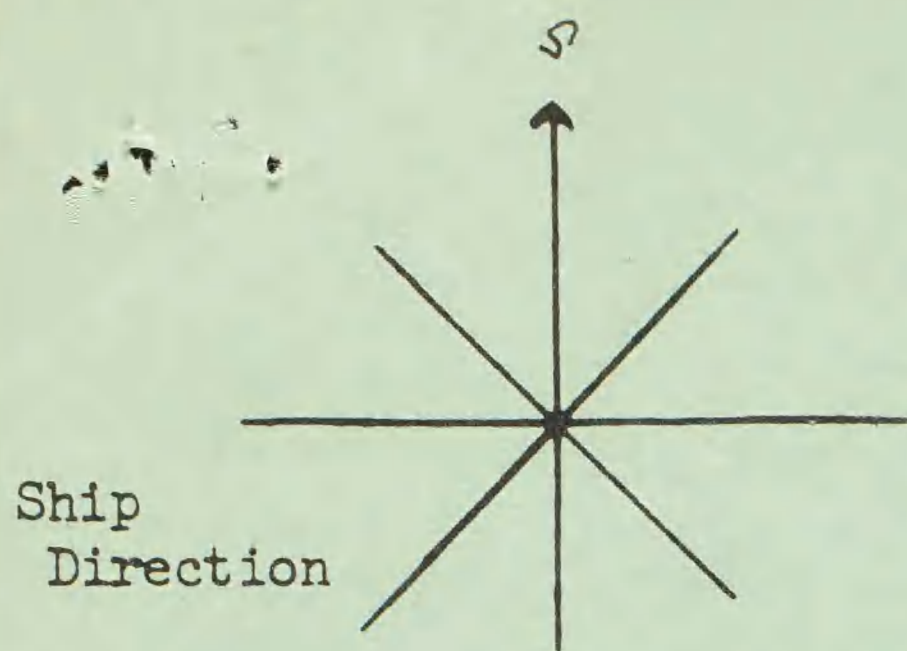
SS - 2 -

DRSP - 14 -

BSP - 1 -

COOK'S - 105

ST PET - 21 - 1000 P?



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CITIZEN

Date JUNE '67

Pg. # 2

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

1445 BEGIN AGIU

1446 BFA 1 dh

1447 STORM PET 5

1450 " 4 2 wrap 2 drop

1457 COOKS 2

WRSP 1

1458 STORM PET 3

1459 COOKS PET 1

1500 } NO OBS.

1745

1747 WRSP 1

1748 COOKS PET 1

1750 STORM PET 2 1 lt wrap 1 dh or beach type

1751 COOKS PET 1

1758 DRSP 1 CERRO DEL CEDRO VISIBLE

1759 -SP 1

1800 COOKS PET 1

1802 -SP 1 SINGLE BIRD DEFINITE WEST MOVEMENT

1803 COOKS PET 1

1805 " 1

1806 WRSP 1

1808 COOKS PET 1

1815 } NO OBS.

1905

1906 WRSP 2

DRSP 1

1907 -SP 1

1910 WRSP 1

1912 DRSP 1

1913 DRSP 2

1913 B'SB 1

1917 DRSP 1

1920 CLOSE OBS.

R?

STORM-11

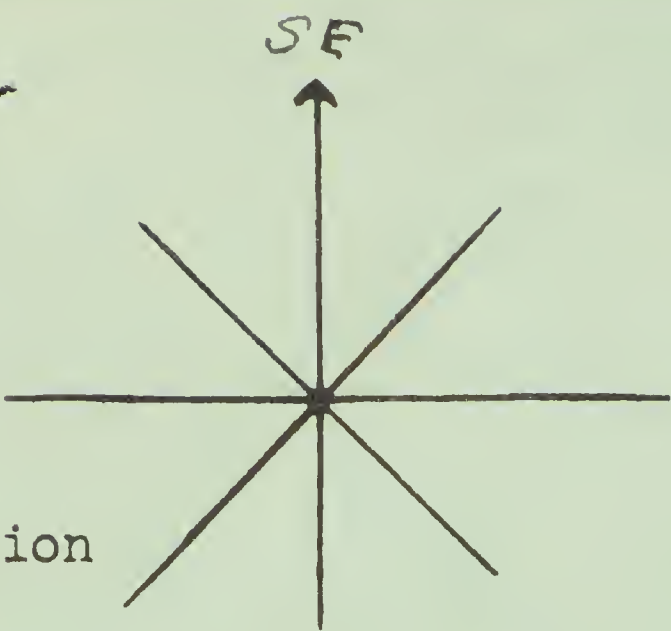
COOKS-9

WRSP-9-

DRSP-8-

BSP-1-

slow flight



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

Date 2 JUNE 1967

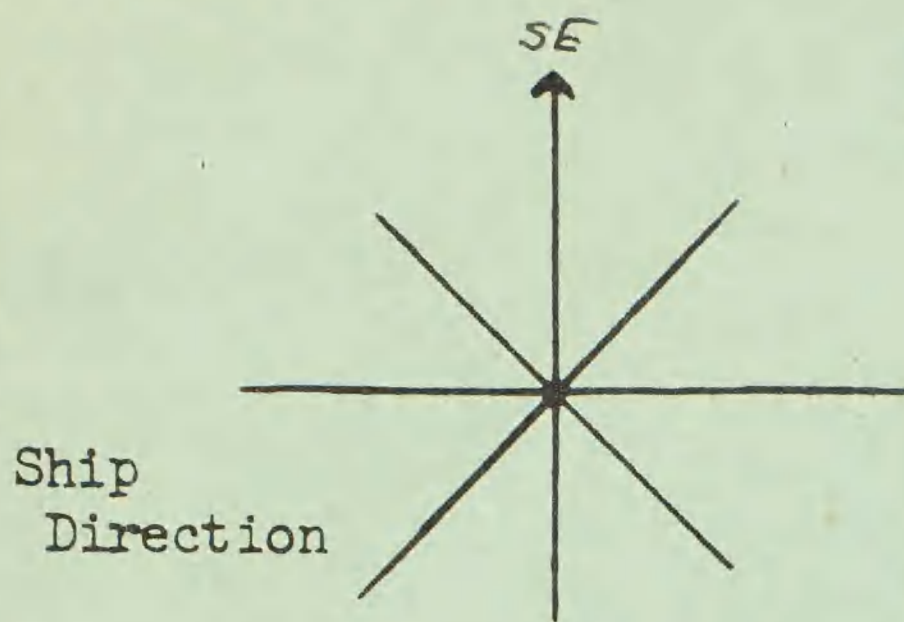
Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0800					BEGIN OBS
0803	BFA	2	ce		dh rump
1805	BSP	1	ce		
1809	STORM PET.	1	ce		L or B
1815	STORM PET	1	ce		"
1825	DRSP	1	ce		
1829	SHEAR/PET	1	E		dark above light below, no rafter seen coo-hilaria?
0830					CAPT REPORTS FLOCK OF 62 COOK'S PET AT 0900 COOK'S SEEN OFF AND ON DURING THIS PERIOD → 12 (COUNT) B STORM PETS FOLLOWING ASTERU JUST OUT OF GUN RANGE MANY (-30±) fishing boats in this area.
1445					
1445	BLACK SP	12	ce		
1455	SOOTY SHEAR	1	N		
1456	COOK'S PET	5	ce		
1459	" "	1	ce		on H ₂ O flew
1507	BLACK STORMP	1	E		
1515	STORM PET.	1	ce		L or B
1515					} NO OBS.
1730					
1730	BLACK SP	12±	ce		STILL FOLLOWING ASTRA
1731	STORM PET SP	1	ce		L or B
1736	BLACK SP	1	NW		
1740	BFA	1	ce		mottled white rump.
1741	SHEAR PET	1			SITTING
1800					} NO OBS
1900					
1900	BLACK SP	34			follow
1901	STORM PET	1	ce		looks prob
1902	BLACK SP	1	ce		
1909	"	2	NW		
1910	"	1	NW		
1922	STORM PET SP	1	ce		small fast flapping at dark LEAST!
1925	BSP	1	NW		
1930					CLOSE OBS.

BFA-3 -
BSP-35 -
STP-5 -
DRSP-1 -
LSP-1 -
COOKS-69 -
SS-2



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

Date 3 JUNE 1967

Pg. # 1

SPECIMEN

OR

TIME SPECIES # DIR. BAND NO. REMARKS

0630					BEGIN OBS. low 3' seas pth cldy warm.
0630	BFA	2			{ following astern
	BSP	4			
0631	COOK'S PET	1	N		
0632	SOOTY SHEAR	1	N		
0634	BSP	1	NW		
0645	BSP	1	W		
0650	SHEAR-PET	1	NW		white below brown above (no pattern) dark edges to underwing broad. Lt ph. Wedgetail
0656	BLACKSP	1	W		
0700					{ NO OBS.
1445					PAST CAPO FALSO - SMALL DARK-WINGED FLYING FISH PRESENT FOR FIRST TIME
1445	BSP	8+	CO		
1512	WRSP	1	E		distant ?
1514	STORM PET	1	CO		
1515					{ NO OBS
1700					
1724	BSP	1	E		
1730					CLOSE OBS.

BFA - 2

BSP - 11

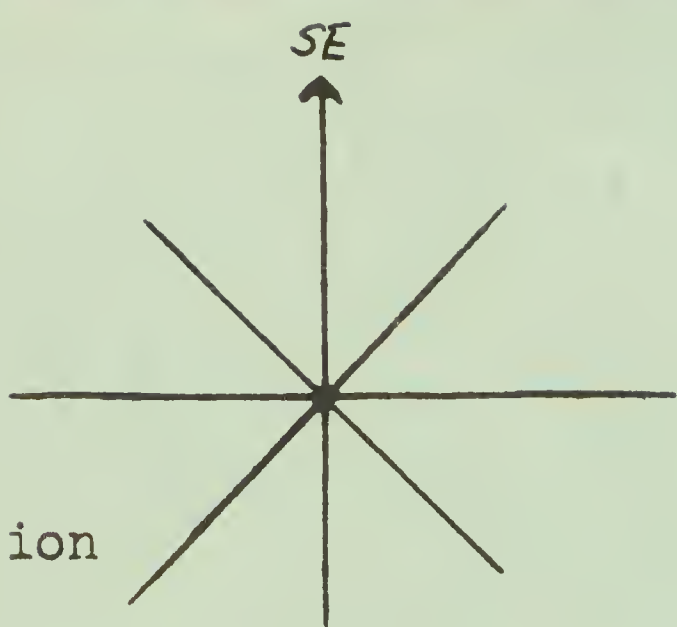
COOKS - 1

SS - 1

WT - 1

WRSP - 1

STORM - 1



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

Date 4 JUNE 1967

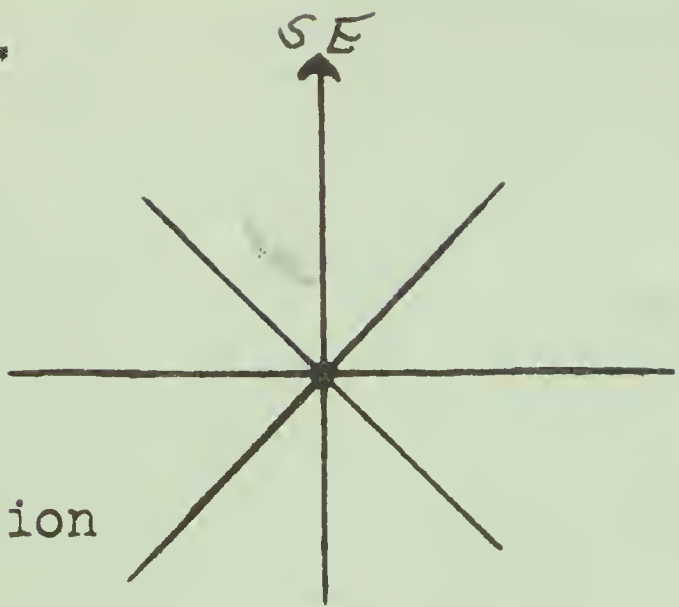
Pg. # 1

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

0800					REGIN OBS - GLASSY SEA - HAZE	PHAL - 1
0801	JAEGER SP	1	ce		dark	3 SP - 3
0802	WRSP	2	ce			WRSP - 15
0807	SOOTY SHEAR	1	NW			OB - 1
0810	WRSP	11			following ten Leach's type	SE - 3
0820					TURTLE	PHAL - 1
0824	BROWN BOOBY	1	ce		ad.	SE - 3
0831					TURTLE	PHAL - 1
0834	PINK FOOT	1	NW			WRSP - 1
0835	SOOTY SHEAR	1	ce		TURTLE	WT - 1
0837					"	RBAL - 1
0843						MANX - 2
0845					3 NOBS	
1230					WIND INCREASES FROM S	
1230					PORPOISE LONG ENO UT DARK ABOVE long straggled	
1240					don't standing birds CA100	
1243	WRSP	1	ce		STOP FOR FISH/DAZL CRABS & WORM SAVED	
1300	WEDGETAIL	1	NW		those colors have left.	ST - 1
1313	RB TB	1	SE		et ph	
1315					rose off H2O	
1530					3 NO OBS.	
1538	SOOTY SHEAR	1	NW			
1540	MANX SHEAR	1	N			
1550	PHAL.	1	ce		non breeding, calling, head & back uniform grayish	
1600.					presence or absence of back streaks not	
1743					determined	
1748	WRSP	1	ce		3 NO OBS.	
1750	MANX	1	NE		TOWARD COAST	
1755	SHEAR SP.	1	N		distinct flight like WEDGETAIL.	
1758	SOOTY TERN	1	NW		ad.	
1802	SHEAR SP	1	S		et ph wedge pattern but (large?)	
1814	JAEGER SP	2	NW			
1815					CLOSE OBS.	



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

Date 5 JUNE 1967

Pg. # 1

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

	0830				BEGIN OBS. PTLY CLOUD
	0831	SHEAR PET	1	NW	
	0833	BIRD	1	NW	
FF	0837	SOOTY? TERN	10?		} DISTANT
		SHEAR PET	2		
	0839	SOOTY SHEAR	1	ce	
TF	0844	SOOTY TERN	7	W	ads
		BOOBY? TERN	2	W	dark small BLACK TERN
	0845	SOOTY SHEAR	1		
	0857	BIRD	1	NW	as 833
	0858	"	1	NW	dark above like below jaeger-gull
	0859	BROWN BOB	1	W	
	0859	WEDGE TAIL	1	W	
SI	0902	BLACK? TERN	7	N	
	0903	SOOTY TERN	1	W	ad
	0906	STORM PET	2	W	dark
	0907	MANX? SH	1	ce	
	0910	SOOTY TERN	3	ce	
	0911	" SHEAR	4	ce	
	0913	SHEAR SP	2		SITTING AD/ MANX
	0915				} NO OBS.
FF	0930	SOOTY TERN	50+	ce	
		WEDGE TAIL	10	ce	
		MANX SH	5+	ce	
	0935	MANX SH	1	N	
	0936	SOOTY TERN	2	N	
	0937	TURTLE	1	ce	
	0940	SABINE'S G.	2	ce	ON H2O
		MANX?	6		"
	0943	SOOTY TERN	4	N	
	0945	BB	1	ce	diving - ad.
	0946	STORM PET	3	ce	
	0949	BLACK? T.	1	ce	above low calling on water
	0950	WASP	1	ce	
FF	0955	MANX? SH	70+		
		BB	10		
		SOOTY TERN	4		
		SOOTY SHEAR	5		
		SLIM BILLY?	1		
		LAST			

CAB
Regonaryachs? / Stenell euphonia



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Chan

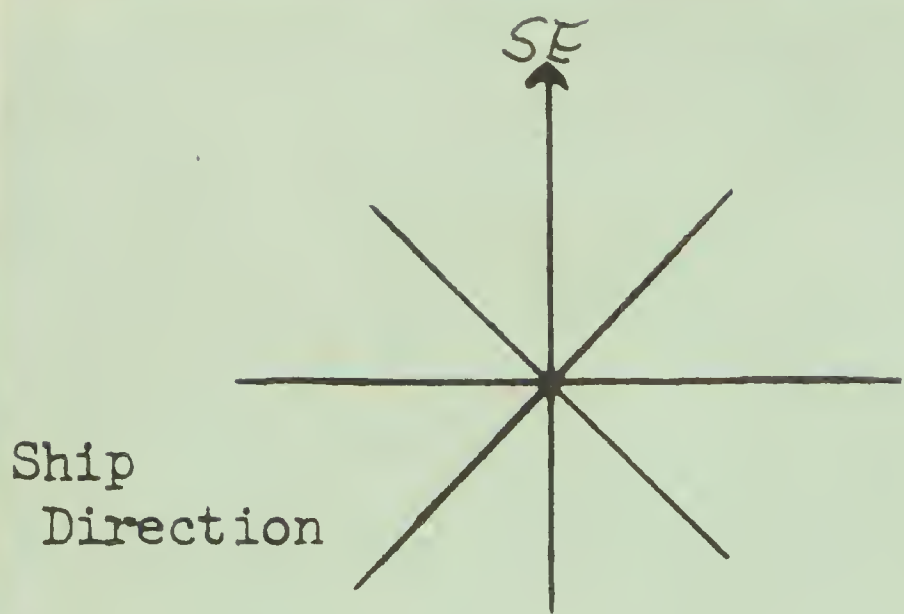
Date 5 JUNE 1967

Pg. # 2

SPECIMEN

or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1003	SABINUSG	6	N		9 MI. OFF COAST FOR LAST HOUR
1004	MANX S	35±	ce		ON H ₂ O
SF 1010	SOOTY TERN	18	ce		
	MANX ST	12	ce		
	BB	1			RIDING TURTLE IMM TURTLE
1020	STORM PET	2	ce		
1025	BLACK TERN?	1			riding turtle distant
1027	" "	1			" " close pro.
1028	STORM PET	1	ce		
TF 1029	MANX	11	SE		
	WEDGE TAIL BIRD	1	or		on TURTLE
1030					
1300					SKIFF IN
1600					SKIFF OUT
SKIFF OBS SUMMARY - ESTIMATES 9 MI. OFF COAST PUFFINUS PUFFINUS - 5000 - 3 COL. WEDGE TAIL SHEAR. LTPH - 500 - 1 COL " " DMH - 100 SOOTY TERN - 800 - 1 COL SOOTY SHEAR - 30 XMAS I SHEAR - 3 (COUNT) EST. 20 1 COL BLACK TERN - 150 MOSTLY (1/2) NON BREED PLUM - 3 COL. JAEGER SP. - 10 IMMS SEEN - 1 COL SHUA - 1 RBTB - 3 - CALLING BROWN BOOBY - 50 MANY IMMS. WRSP - 3 BSP - 1 following ship					



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

GULFO DE
SPECIMEN TEHUANTEPEC
or

OBSERVERS:

CHAN

Date 7 JUNE 1967
Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1500					BEGIN OBS.
1515					WHALE - BALLEN SPOUT DARK MED SIZE DORSAL SET AMIDSHIPS AS OPPOSED TO ASTERN ONLY HEADING ca. NW.
1518	RFB	2	ce		following imm all dark
1525	RFB	1	ce		1 subad joining 2 imm
1545					3 imm obs
1700					
1708	BIRD	1	W		white below - distant
1712	MANX SH.	2	SE		
1713	WRSP	2	ce		fast & erratic
1722					OR FISH - MARLIN? CETACEAN SPLASH
1728	BLUEFACED B.	1	E		ad.
1730	MANX SH.?	8±	ce		ON H2O glimpsed
FF 1733	BIRDS	300±50%	ce		distant undoubtedly MANX/SOOTY/AS PREV.
1738	MANX SH.	20	ce		NOT A FLOCK
1745					CLOSE OBS.
0600					7 RFB S all imm. ALIKE BLUE COLOR
0645					ca 1500-2000 STERN TORSIOPS (THORNTON?) DORSAL SON MED AND SMALL IND LARGER INDIV. SLIGHTLY FLUTE JUMPING AND SPINNING & RIDING BOB WAVE

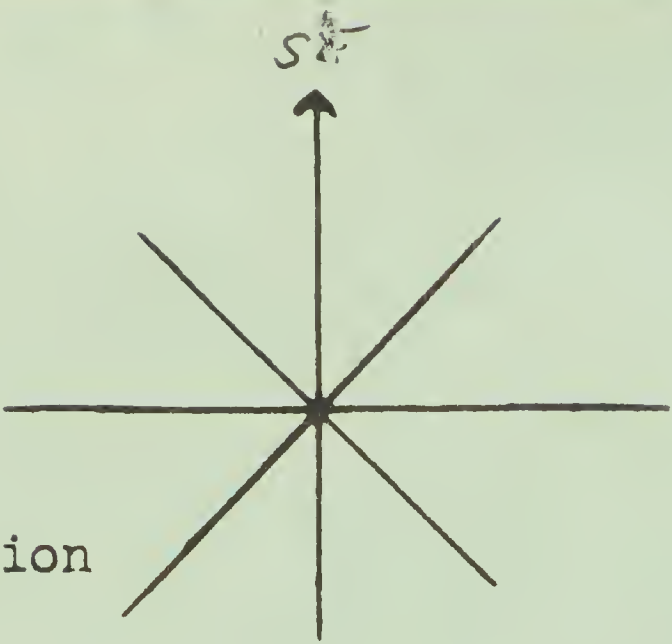
RFB - 3

BIRD 301

WRSP - 30

WASP - 0

WASP - 1



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CITAN

Date 8 JUNE 1967

Pg. # 1

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

0815					BEGIN OBS. RTLY CLOUDY CALM
0825	BFB	1	SE		subad
0843	"	1	SE		ad/subad.
0844	FRIG SP.	1	SE		ad ♀
0845					CLOSE OBS
0920	BFB	1	SE		imm
	TERN. SP	1	SE		com/and etc.
0930	BFB	3	SE		ad.
1530					resume
1537	BFB	1	SE		on H ₂ O
1543					porpoise 3 - TURSIOPS-LIKE BUT ALL SPOTTED AND MOTTLED DORSALLY FOLLOWED BOW WAVE BRIEFLY
1550	BLACK TERN	1	SE		non-breeding sitting on flotation. calling
1600					CLOSE { NO OBS.
1745					OPEN
1750	BFB	1	SE		ad no band
1753					(1)
1757	BOOBY SP	3	SE		TURSIOPS UNDER BOW CURVED DORSAL + LARGE INDIV. SCARS.
1805	JAEGER SP.	1	SE		NOT BFB MAYBE ONLY RF but may be other sp.
	TERN SP.	4	SE		chasing terns { DISTANT - ALSO 3 booby sp + 1 BFB IN SIGHT 4 RE
FF 1813	BLACK TERN?	20+			sooty or black
	WEDGE TAIL	4?			probably black
	STORM PET	1+			lt. ph
1815					CLOSE OBS.

BFB - 9

FRSP - 1

TERN - 1

BT - 21

BOOBY SP - 3

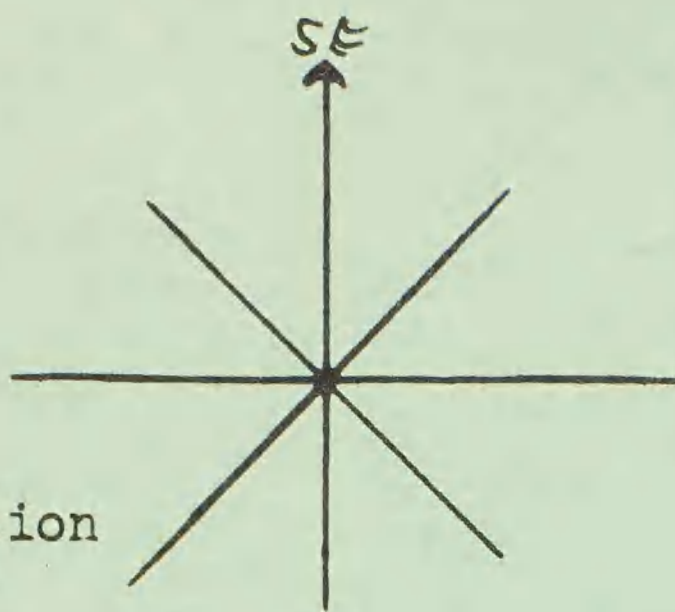
J SP - 1

TERN - 4

ST - 1

SI-MNH-958-e

Rev. 5-66



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CH AN

Date 9 JUNE

Pg. # 1

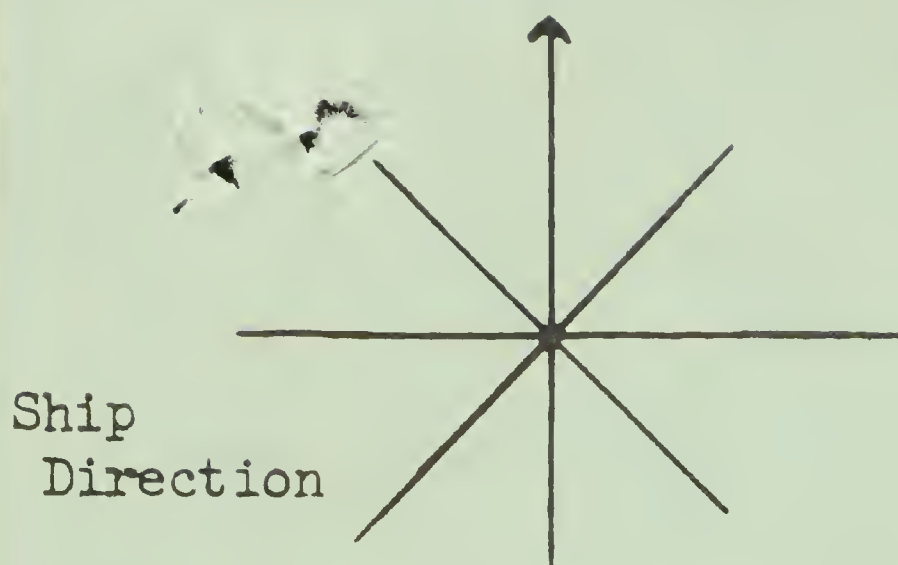
SPECIMEN

or

DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1455					BEGIN OBS. HIGH WINDS & SEAS
1458	AUD/MANY.	1	E		
1515	WRSP	1	ce		
1525					
1700					
1701	WRSP	2	ce		following wake
1703	R?FB	2	ce		dark boobies not Brown or BF
1708	BF-B	1	w		ad
TF 1725	PALE FOOT	80±			CAPT. REPORTS MANY STORM PETrels
	SHEAR/PF	2+			DURING 08-1200 ALSO MANY BOOBIES
	WRSP	5+			light bulb
	BF-B	1+			ALL TRAVELING WEST
					GLUBICEPTALIA - ca 20
1735	WRSP	1	ce		
1745					CLOSE OBS.

AUD/MANY - 1
WRSP - 9
R?FB - 2
BF-B - 2
PFS 80
SLP - 2
96 ✓



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

Date 10 JUNE 1967
Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0645					BEGIN OBS
0646	BSP	1	e		
	SP SP.	1	e		
0647	BR. BOOB	1	S		imm.
0650	SHEAR SP	1	S		all dark
0651					TURSIOPS 5+ under bow
0652	WRSP	2	ce		
0658	FRIG SP	1	ce		15-1800 ft.
0702	LT J.	1	e		white collar imm
	J SP	2	ce		
0706	BR. B	9	S		6 ads 2 imm 1 abas
0707	WRSP	1	ce		
0708	AUD?	1	S		brownish back.
0710	BB	5	S		3 ads 2 imm
0711	"	8	S		
0712	"	7	S		
0712	AUD?	2	S		
0713	WEDG TAIL	1	ce		et. pl.
0714	BB	2	S		ads
0715	BIRDS	150+	ce		flock distant to land side
0715	WRSP	1	ce		
0718	"	2	ce		
0720	FRIG. SP	1	ce		
0721	J SP.	1	ce		
0722	BB	3	ce		
0725	MANX?	1	ce		as above?
0725	MANX AUDS?	4	SW		
0726	BSP	1	ce		
0727	AUD/MANX	3	ce		
0729	WRSP	6	SW		
0730					
1230					close.
1231	WRSP	1	ce		open.
1235	BSP	1	ce		
1239	BB	2			SITTING ON DRIFTWOOD
1240					PORPOISE 150+ JUMPING

BSP-7

SP-1

BB-40

SP-1

WRSP-23

BB-4

BB-1

BB-9

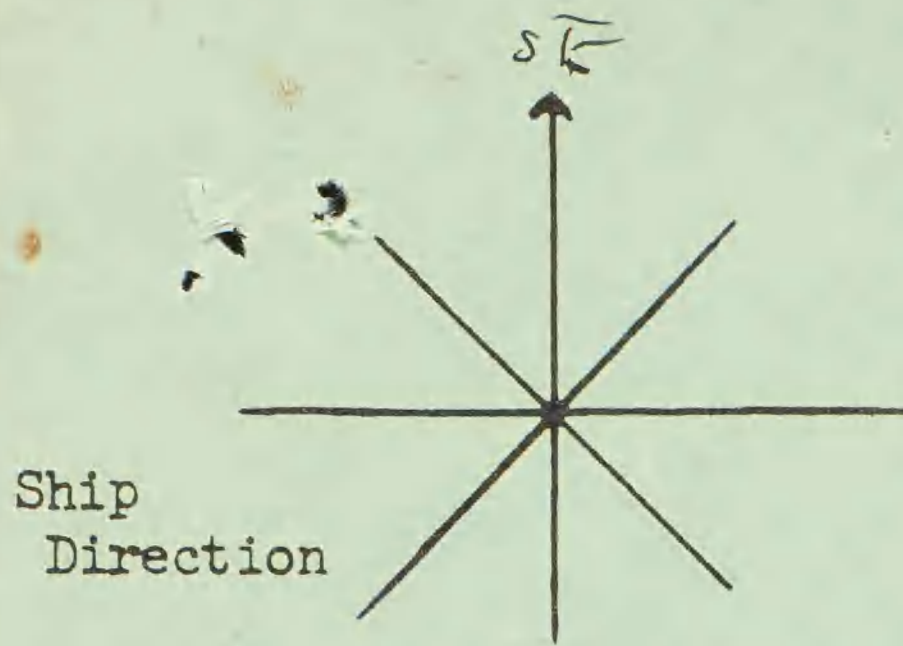
BB-15

WT-1

BB-150

BB-4

BB-1



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

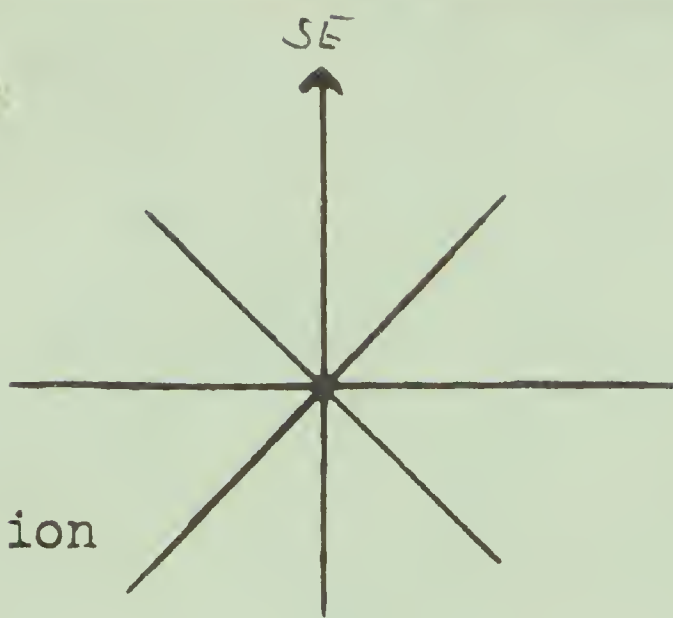
SPECIMEN
or
PUNTARENTS

Date 10 June

Pg. # 2

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1243	WASP	1	cel		
1244	FRIG SP	2	ce		above poyou
1244	MANXS	1	ce		
1245	JACK SP	1			in
1245	WASP	6			on H ₂ O
1245	BLACK T.	4			on H ₂ O + STICKS
1245	WASP	1	ce		
1245					
1315					NO OBS
1315	BSP	4	ce		following
1319	WRSP	1	ce		
1320	BOOBYS	1	cel		brown RFB
1322	BB	2	SE		subd.
1323	WRSP	1	ce		
1325	BB	1	W		ad.
1330					CLOSE

Ship
Direction



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

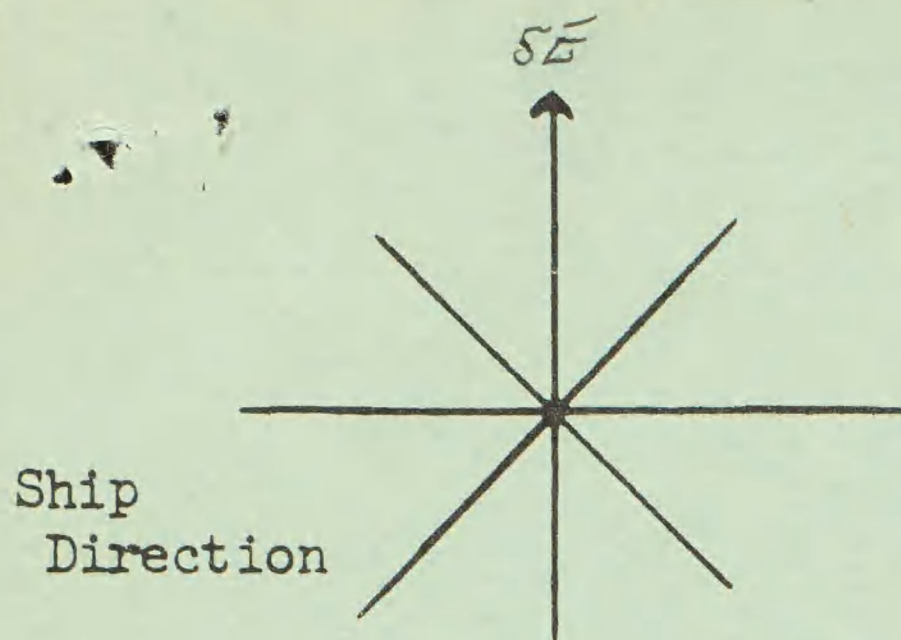
Date 11 JUNE

Pg. # 1

SPECIMEN

or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0630					BEGIN OBS
0635	RBTB	1	ce		circled ship imm.
0633					TURTLE
0640	FRIG SP.	1	ce		
0641	WRSP	1	ce		
0645	AUDMANX	1	ce		
0646	"	1	ce		
0648	WRSP	2	ce		
0652	BB	1	ce		ad circled shy
0653	WRSP	1	ce		
0655	BB	2	ce		ads.
0658	AUDMANX	1	ce		
0703	WRSP	1	ce		
0707	AUD/MANX	1	ce		
0708	BSP	1	ce		
0710	PALE FOOT?S	1	NW		
0713	BB	2	ce		ads.
0715	BSP	1	ce		following astern
0718	GULL	1	ce		Dark head mottled, small size
0728	AUD/MANX	1	ce		mentle brown, gull grey or a little lighter
0729	CNT	1	W		wing tips dark, but not distinct and not seen well anyway
0730	FRIG SP	1			
0730					
1400					NO OBS
1407	BSP	1	ce		
1410	MAG FRIG	1	ce		ad & no brown wing bar
1411	WRSP	1	ce		
1412	BSP	1	ce		
1414	STORM PET	1	ce		small dark wing ishy?
1415	WRSP	1	ce		
1416	AUDMANX	1	ce		
1417	WRSP	1	ce		
1418	CNT	1	ce		
1418	WRSP	1	ce		
1420	WRSP ?SP	1	ce		
1421	WRSP	1	ce		
1421	BSP	1	ce		



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

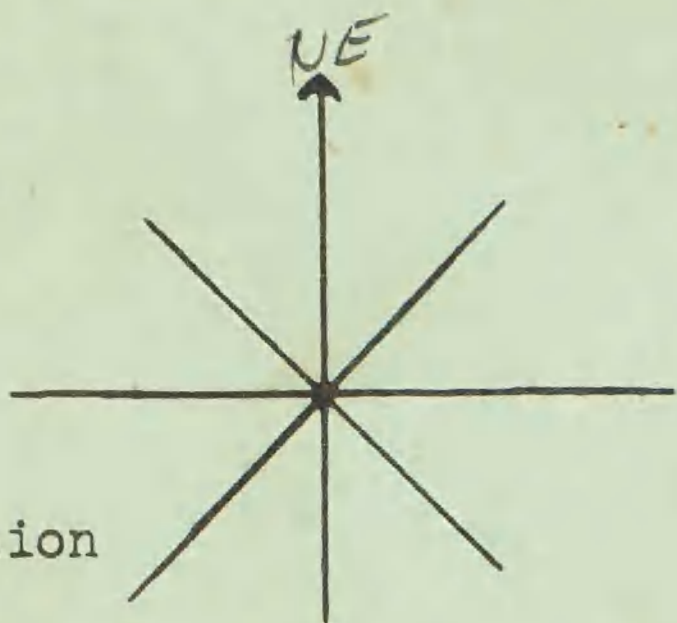
CHAU

Date 11 JUNE 1967

Pg. # 2

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1423	WRSD	1	ee		
1425	WRSD	1	ee		
1426	WRSD	2	ee		
1430					CLOSE
1600	BSP	12 ±			} bolbyris wake
	WRSD	25 ±			



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

C. H. H. V.

Date 12 JUNE 1967

Pg. #

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

0800 BEGIN OBS

0800 BSP 5+ W eastern

0802 BB 1 W ad circling ship

0807 FRIG SP 10+ W

0810 TERNS 3 NW like gray BT

0812 " 1 NW

0815 " 3 SW

0815 FRIG SP 10+ W all about easterlies + benches

0816 CNT 3 W sitting on driftwood

0817 TERNS 3 SE some as alone

0820 BLACK T. 40+ W

TERN (BIG) 4+ W imm common-type

BB 6 W

CNT 4 W

0822 SHB? GULL 1 W imm?

0825 CNT 40 W feeding over 2 'strays' fish

BT 30 W

0827 SHB GULL 1 W

WASP 5+ W

0828 BB 2 W body following act

0829 BSP 2 W

0830 CLOSE

BSP - 7

BB - 9

FRIG - 20

BT - 80

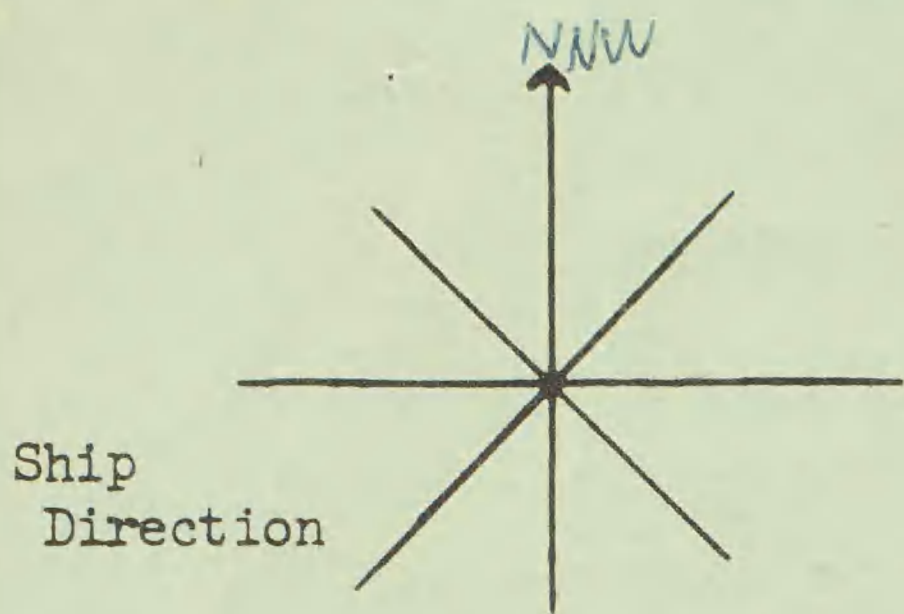
CNT - 47

TERN 4 com

SHB - 2

ALBA - 1

WASP - 5




SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

SPECIMEN 1ST DAY ATLANTIC
or

OBSERVERS:

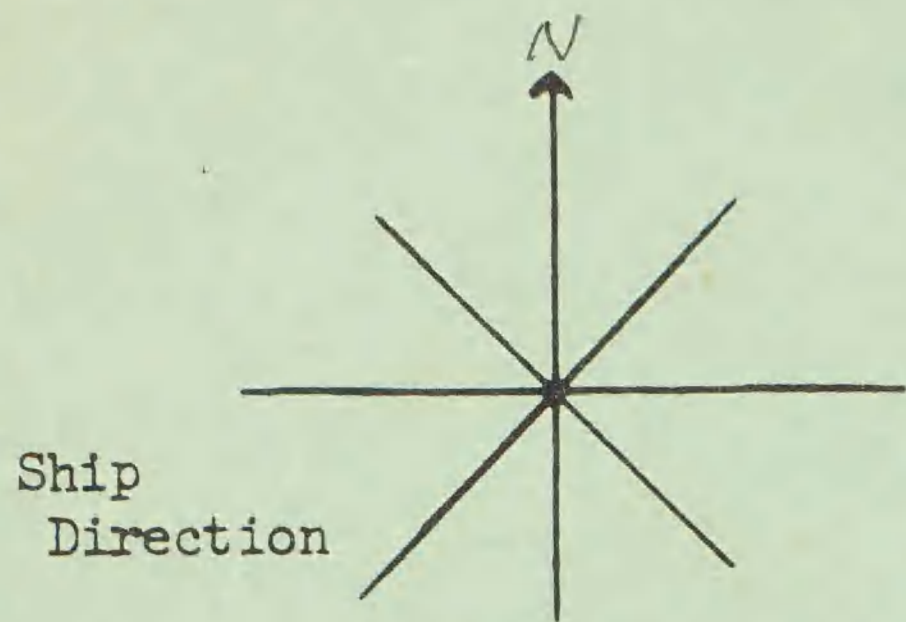
CHAN

Date 14 JUNE 67
Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1200					BEGIN OBS. - PITY CLOUD NE TRADES LIGHT
1210	STORM PET.	1	CE		
1215	WHALE SP.				ca 15 GLOBICEPHALA LOOKING BUT OF LIGHTER COLOR. DORSAL VERY ROUNDED AND CURVED
					
1245					CLOSE
1400					OPEN
FF 1420	SOOTY TERN	1515	CE		DISTANT BUT DOUBTLESS THIS SPECIES
1425	" "	2	CE		SITTING ON WATER - WINGS CLOSED - QUITE HAPPY 10-15 SEC. THAT I SAW - ADS.
1430					
1600					CLOSE
1608	SOOTY TERN	4	SE		OPEN
TF 1610	" "	6	SE		ad.
1612	" "	1	SE		ad.
SF 1614	" "	22	CE		ad. } dropped 1 x to feed calling
	AUD. SH.	1	CE		FAST FLAPPING SMALL PREDATOR FISH & FLYING FISH SEEN
1630					CLOSE
1745					OPEN
1750	SOOTY TERN	1	NW		ISLAND IN SCA
SF 1754	" "	8	CE		IN SCA
FF 1755	" "	9	CE		" "
SF 1823	" "	14	CE		" "
	TERN SP	1	CE		" " smaller than sooty stayed closer to H ₂ O
1830					CLOSE OBS

2'd till lunch but don't expect I missed much.

NE trades 10-14 kts all day rolling continually
but not violently hazy sun all PM. Sooty Terns
increased as we approached island (visible barely
through haze at supper. ST sitting on H₂O was
for real, a real odd one on me. Storm pet not seen
suspect Leach's though Aud's probably was Aud's not
many but real #2 best. Whales looked & acted like Glob.
but color real light. Flying fish of 2 sorts
1 largeish solitary, 1 smaller schooling. 1 big Pterodroma seen
no fish caught off fortail. No guess on non-sooty
bridled - common (black?) - how nod!?



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

Date 15 JUNE

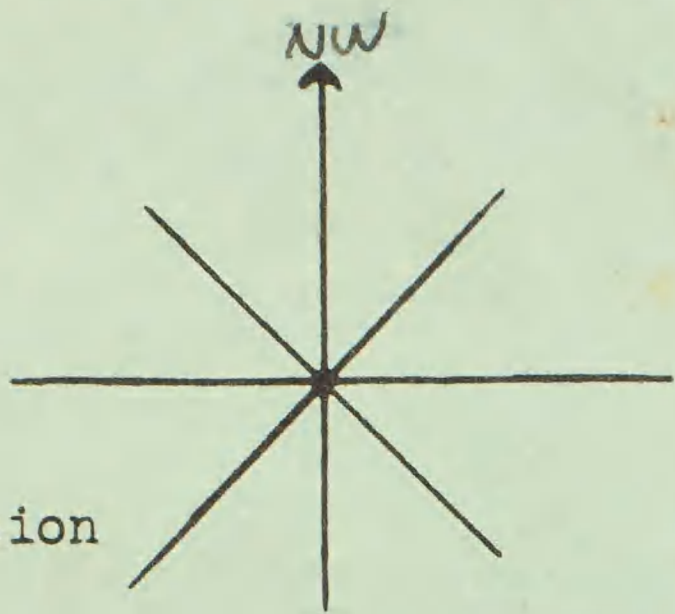
Pg. # 1

SPECIMEN 2nd DAY ATLANTIC
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0615					START OBSERVATING
0657	FRIG.	1	☉		SEAS #5 YESTERDAY W C/L to E0
0700					CLOSE
0845					OPEN
0849	SOOTY TERN	2	NE		ads.
0900					CLOSE
1530					DECK REPORTS LARGE FEEDING FLOCK IN EARLY AM ST NO DOUBT.
1535	SOOTY TERN	1	SE		open ad
1600					CLOSE
1730					OPEN
FF 1745	SOOTY TERN	150±25	☉		
	SULA SP.	15±3	☉		GANNETS? DIVING FROM HEIGHT FAIRLY DIST.
1753	BROWN NOD.	1	☉		AD & NON ADS CA 50/50?
1816					CLOSE OBS.

WIND SHIFTED AROUND TO SE BY LATE AFTERNOON 14 KTS FOLLOWING
MOST OF DAY HAZY & PTLY CLDY
FLYING FISH ABUNDANT

WERE GOING W/ A 1 KTS CURRENT MAKING 11 KTS GOOD



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

Date 16 JUNE 67

Pg. # 1

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

	0640					BEGIN OBS.
SF	0700	SOOTY TERN	35 ± 2	S		ade.
	0702	" "	4	SE		ade.
	0702	" "	2	W		ade.
	0703	" "	1	W		ade.
SF	0705	" "	17	S		ade.
	0710					CLOSE
	1700					OPEN
	1800					CLOSE

BARN SWALLOW

RAIN 41514 NO BIRDS SEEN

ENE

Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

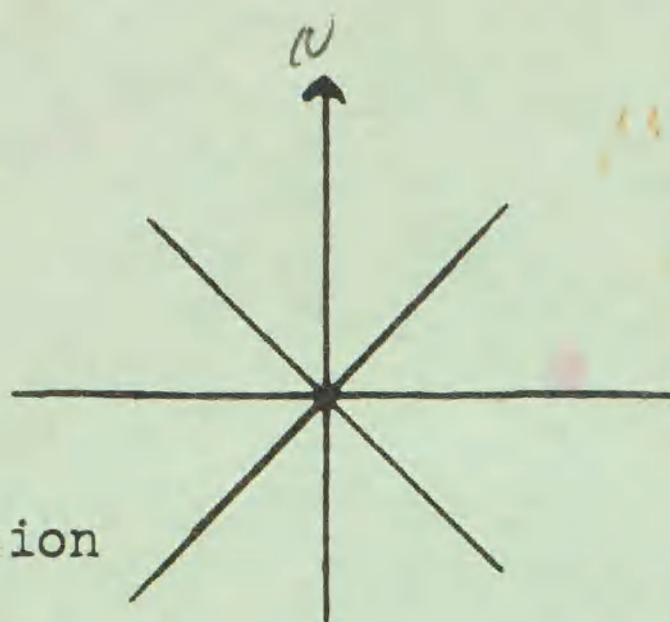
CHAN

SPECIMEN NO. W. CUBA
or

Date 17 JUNE 1967
Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0705					BEGIN OBS
0735					Close
0800					BEGIN
0810	HERON	4	SE		ALL WHITE PROBABLY CATTLE OR SNOWY FLIGHT FLYING TOGETHER 2 LOW OVER H ₂ O DIRECT. ^{? NOT RIGHT}
0830					CLOSE

Ship
Direction



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

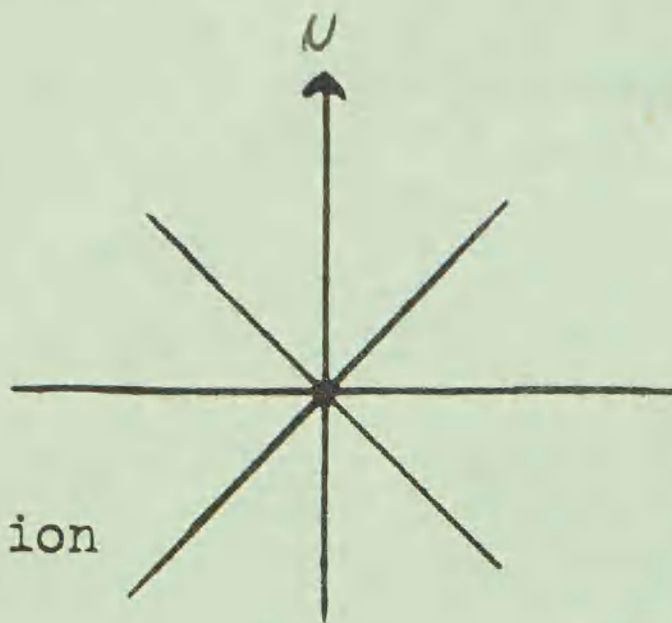
CHAN

Date 18 JUNE 1967
Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0715					BEGIN OBS. OVERCAST
0720	WRS P	1	NE		DIRECT FLIGHT SHALLOW WING BEATS FUNNY LOOKING IF LEACH'S JUST AS FUNNY " IF WILSONS, BUT LATER IS LEAST FUNNY
0730	AUD. S.	1	NE		
0740	WRS P	1	NE		
0745	"	10±	NE		as above WILSON'S I THINK MORE LIKELY following later WILSON'S
0745					CLOSE
0900					OPEN <u>NO</u> WILSONS ASTERN
0928	WRS P	1	NE		WILSONS.
0929	"	1	NE		"
0930	"	5	SE		astern
0931	SOOTY TER	1	E		ad
0932	" "	2	S		ad
0933	" "	1	SW		ad.
0937	" "	2	SW		ad.
0945					CLOSE
1215					OPEN
1215	WILS. SP	7±	NE		astern
1217	" "	1	NE		
1218	" "	2	NE		
1237	SOOTY TER	4	NE		ad.
	AUD. S.	1	NE		PRIM. MOLT
1241	AUD. S.	2	NE		ON H ₂ O
1244	WILS. SP	1	E		
1245					CLOSE



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN

Date 19 JUNE 1967

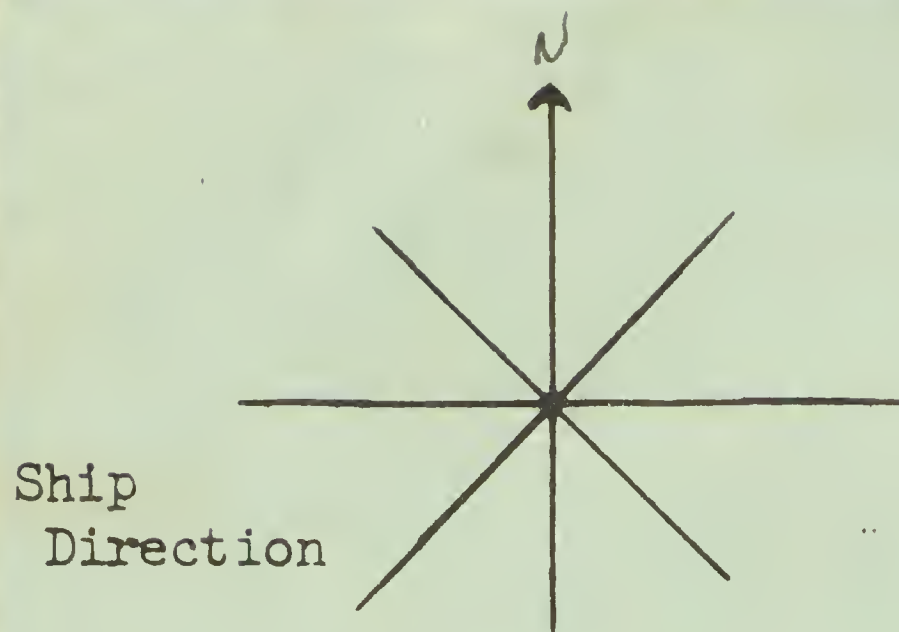
Pg. # 1

SPECIMEN

or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1045					BEGIN OBS
1045	WILS. SP	12	ce		astern
1045	CATTLE EG.	1	ce		
1102	WILS. SP	2	ce		
1112	" "	2	ce		
1115					CLOSE
1245					OPEN
1245	WILS. SP	4	ce		astern, numbers fluctuating greatly
1313	WILS. SP	1	ce		saw about 20 AT 1215
1330					CLOSE
1515					OPEN
1515	WILS. SP	12	ce		astern
1535	" "	2	ce		
1545					CLOSE

WIND PROBABLY STRENGTHENING → 18 KTS
NW



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

CHAN


Date 30 JUNE 1967

Pg. # 1

SPECIMEN

or

DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0645					BEGIN OBS. LIGHT WIND 75 KTS
0645	PORPOISE				30-35 MI. FROM CHARLESTON
					NO WRSPASTER FLYING FISH ✓
		8			 <p>ALL AREAS SMALL SPOTTED OR MOTTLED WHITE SPOTTING VARIABLE RIDING BOW</p>
0700	PORPOISE				4 as above
0715					CLOSE
0815					OPEN
0830					CLOSE } NO BIRDS
0900					OPEN } NO BIRDS
0930					CLOSE } NO BIRDS
					2 FISH CAUGHT <u>SERRA NIPHE?</u>

PACIFIC DAYLIGHT
SAVINGS TIME (+7)

Date 5/30/67 Ship () Cruise No.

Organization Recorder

Sunrise: Time 0600 Position: Lat. 34°10'N, Long. 122°04'W

Sunset: Time 2006 Position: Lat. , Long.

Miles travelled from 0000 hours to sunrise = 6.3

Miles travelled from sunrise to sunset =

Miles travelled from sunset to 2400 hours =

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
-------------	-------------	----------	-----------

1. 1

2.

3. Hourly Loran

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Ship Dir. <u>Ship Dir.</u>	Ship Sp. <u>Ship Sp.</u>	Wave Hgt.
------	----------	-----------	-----------	----------	----------------------------	--------------------------	-----------

0100							
0200							
0300							
0400	35-29'N	122-04'W	345	30	180	10	
0500	35-19'N	122-04'W	330	30	180	10	
0600	35-10'N	122-04'W	320	30	180	10	
0700	34-55'N	122-01'W	325	20	149	10	
0800	34-45'N	121-57'W	325	30	169	10 KTS	
0900	34-38'N	121-55'W	325	33	169	10	
1000	34-28'N	121-50'W	325	33	169	10	
1100	34-18'N	121-48'W	325	33	169	10	
1200	34-07'N	121-46'W	325	33	169	10	
1300	33-57'N	121-43'W	330	30	169	10	
1400	33-47'N	121-41'W	340	28	169	10	
1500	33-37'N	121-39'W	340	28	169	10	
1600	33-27'N	121-35'W	340	30	169	10	
1700	33-16'N	121-30'W	330	30	169	10	
1800	33-05'N	121-29'W	330	30	169	10	
1900	32-54'N	121-25'W	320	30	169	10	
2000	32-47'N	121-26	325	30	169	10	
2100	32-36	121-22	325	30	166	10	
2200	32-28	121-19	325	30	169	10	
2300	32-28	121-18	325	30	169	10	
2400			325	30	165	10	

PACIFIC DAYLIGHT
SAVING TIME (+7)

Date 5/31/67 Ship () Cruise No. 177-67-08
Organization _____ Recorder _____

Sunrise: Time 0602 Position: Lat. 31°02'N, Long. 121°02'W
Sunset: Time 1952 Position: Lat. 29°21'N, Long. 118°56'W

Miles travelled from 0000 hours to sunrise = 66
Miles travelled from sunrise to sunset = 145
Miles travelled from sunset to 2400 hours = 44

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0700	LORAN + SUN	30°50'N	121°00'W
2.				
3.				
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	SHIP Wave Dir.	SHIP SP Wave Hgt.
0100	31-36N	121-14 W	325	24	169	11.0
0200	31-45N	121-12 W	325	22	169	11.0
0300	31-35N	121-09 W	320	20	169	11.0
0400	31°21'N	121°06'W	320	20	169	10.5
0500	31°11'N	121°04'W	320	20	169	10.5
0600	31°02'N	121°02'W	320	18	169	10.5
0700	30-50N	121°00'W	320	18	122	11.0
0800	30-44N	120°50'W	320	18	122	11.0
0900	30-40N	120-41W	385	12	122	10
1000	30-38N	120-31W	285	12	122	10
1100	30-30N	120-21W	285	12	122	10
1200	30-24N	120-10W	285	14	120	10
1300	30-18N	120-00W	280	14	122	10
1400	30-12N	119-49W	280	14	122	10
1500	30-06N	119-38W	285	12	122	10
1600	30-00N	119-28W	290	12	122	10
1700	29°56'N	119°21'W	300	10	122	10
1800	29°52'N	119-15W	300	10	122	10
1900	29°46N	119°05W	310	10	122	10
2000	29°40N	118°55W	310	10	122	10
2100	29-36N	118-47W	310	10	122	10
2200	29-33N	118-37W	310	10	122	10
2300	29-24	118-28W	310	10	122	10
2400	29°21'N	118°17'W	310	10	122	10

PACIFIC DAYLIGHT SAVING
TIME (+7)

Date 1 JUNE 1967 Ship () Cruise No. 177-47-08

Organization Recorder

Sunrise: Time 0554 Position: Lat. 28°04'N, Long. 117°04'N

Sunset: Time 1930 Position: Lat. 27°08'N, Long. 115°57'W

Miles travelled from 0000 hours to sunrise = 59

Miles travelled from sunrise to sunset = 132

Miles travelled from sunset to 2400 hours = 45

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.				
2.				
3.				
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	SHIP'S CS Wave Dir.	SHIP'S SP. Wave Hgt.
0100	29-13N	118-11W	330	10	157°	10
0200	29-04N	118-06W	330	10	157°	10
0300	28-55N	118-02W	330	10	157°	10
0400	28-47N	117-56W	330	10	132°	10
0500	28-39N	117-48W	000	7	132	10
0600	28-30N	117-40W	000	10	132	10
0700	28-26N	117-30W	030	10	132	10
0800	28-19N	117-22W	030	10	132	10
0900	28-14N	117-16W	CALM		132	10
1000	28-06	117-06W	CALM		132	8
1100	27-58W	116-58	CALM		132	8
1200	27-51N	116-53W	CALM		132	10
1300	27-45N	116-44W	CALM		132	10
1400	27-32N	116-34W	000	10	132	10
1500	27-31N	116-25W	000	10	129	10
1600	27-24N	116-16W	000	10	129	10
1700	27-23N	116-10W	000	10	129	10
1800	27-16N	116-09W	340	8	129	10
1900	27-11N	116-01W	340	10	129	10
2000	27-05N	115-53W	340	10	129	10
2100	26-58N	115-44W	340	10	129	10
2200	26-52N	115-35W	340	10	129	10
2300	26-46N	115-27W	340	10	129	10
2400	26-40N	115-19W	340	10	129	10

PAC. DAYLIGHT SAVING TIME (+7)

Date 6/2/67 Ship SHEAR WATER) Cruise No. 177-67-08

Organization _____ Recorder _____

Sunrise: Time 0546 Position: Lat. 26°00'N, Long. 114°29'WSunset: Time 1915 Position: Lat. 24°32'N, Long. 112°29'WMiles travelled from 0000 hours to sunrise = 60Miles travelled from sunrise to sunset = 133 mi.

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0530	CELESTIAL	24°01'N	114°31'W
2.	1230	CELESTIAL	25°13'N	113°31'W
3.				
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	SHIPS CS Wave Dir.	SHIPS SP Wave Hgt.
0100	26-33N	115-10W	340	18	129	10
0200	26-27N	115-01W	340	18	129	10
0300	26-18N	114-42W	340	18	129	10
0400	26-04N	114-30W	340	14	129	10
0500	26-04N	114-35W	000	10	129	10
0600	25-57N	114-26W	000	10	129	10
0700	25-52N	114-18W	000	10	129	10
0800	25-45N	114-09W	000	10	129	10
0900	25-43N	114-03	345	7	129	11
1000	25-34N	113-53	345	7	129	11
1100	25-28N	113-41	345	5	127	11
1200	25-17N	113-36W	345	5	129	11
1300	25-10N	113-27W	350	5	128	10
1400	25-03N	113-18W	000	7	128	10
1500	24-52N	113-09W	000	8	128	10
1600	24-50N	113-00W	000	8	128	10
1700	24-46N	112°50'W	100	8	123	10
1800	24°41'N	112°40'W	320	10	128	10
1900	24-33N	112°31'W	320	10	128	10
2000	24°29'N	112°22'W	320	10	128	10
2100	24-20N	112-13W	320	10	128	10
2200	24-12N	112-05W	320	10	128	10
2300	24-05N	111-54W	320	10	128	10
2400	23-59N	111-44W	320	10	128	10

PAC. DAYLIGHT SAVING TIME
(+7)

Date 6/3/67 Ship SHEARWATER () Cruise No. 177-67-08

Organization _____ Recorder _____

Sunrise: Time 0538 Position: Lat. 23-19'N, Long. 110° 56'W ✓

Sunset: Time 1903 Position: Lat. 21-52'N, Long. 109-04'W

Miles travelled from 0000 hours to sunrise = 61

Miles travelled from sunrise to sunset = 147 miles

Miles travelled from sunset to 2400 hours = 49 miles

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0230 LOCAL	PILOTING	23-41'N	111-21'W
2.	1200 LOCAL	PILOTING	22-35'N	110-00'W
3.				
4.				
5.				

Hourly Positions:

SHIPS CS SHIPS SW

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	23-51'N	111-46'W	315	8	129	10
0200	23-45'N	111-27'W	315	8	129	10
0300	23-37'N	111-17'W	315	10	129	11
0400	23-31'N	111-08'W	315	10	129	11
0500	23-25'N	110-50'W	320	15	129	11
0600	23-17'N	110-42'W	320	12	129	11
0700	23-09'N	110-34'W	320	10	129	10
0800	22-02'N	110-24'W	310	10	129	10
0900	22-54'N	110-25'W	315	13	128	10
1000	22-50'N	110-19'W	315	13	128	10
1100	22-41'N	110-09'W	315	13	128	10
1200	22-35'N	110-00'W	315	13	128	10
1300	22-29	109-52'W	310	15	128	10
1400	22-24	109-46'W	310	16	120	10
1500	22-17'N	109-38'W	310	16	120	10
1600	22-11'N	109-31'W	310	15	127	10
1700	22-05'N	109-22'W	310	8	127	10
1800	21-58'N	109-13'W	310	8	127	10
1900	21-52'N	109-05'W	315	7	127	10
2000	21-45'N	108-56'W	315	7	127	10
2100	21-40'N	108-46'W	315	6	127	10
2200	21-33'N	108-39'W	315	5	127	10
2300	21-27'N	108-31'W	315	5	127	10
2400	21-22'N	108-24'W	315	5	127	10

PAC. DAYLIGHT SAVING
TIME (+7)

Date 6/4/67 Ship SHEARWATER () Cruise No. 177-67-08

Organization _____ Recorder _____

Sunrise: Time 0528 Position: Lat. 20°40'N, Long. 107°38'W

Sunset: Time 1857 Position: Lat. 19°39'N, Long. 105°49'W

Miles travelled from 0000 hours to sunrise = 55

Miles travelled from sunrise to sunset = 133

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0500	CELESTIAL	20°49'N	107°37'W
2.				
3.				
4.	Hourly Land Q.			
5.	* 2300 advanced clock 20 min.			

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	SHIPS CS. Wave Dir.	SHIPS SR. Wave Hgt.
0100	21-15N	108°-13'W	310	4	130°	11
0200	21-09N	108-04W	310	4	130°	11
0300	21-02N	107-55W	320	4	130°	11
0400	20-56N	107-46W	340	4	130°	11
0500	20-50N	107-37W	325	4	130	11
0600	20-43N	107-32W	325	6	130	11
0700	20-31N	107-25W	020	4	125	10
0800	20-26N	107°-17'W	050	4	125	10
0900	20-23N	107-10W	180	6	120	10
1000	20-16N	106-58W	180	6	120	10
1100	20-11N	106-51	180	6	120	10
1200	20-05N	106-40	180	6	120	10
1300	2	22				
1400	19-39	24				
1500	36	16				
1600	19°53'N	106°-07'W	200	12	124	10
1700	19°48'N	105°-58'W	200	12	124	10
1800	19°44'N	105°-50'W	210	8	124	10
1900	19°38'N	105°-40'W	010	8	124	10
2000	19°30'N	105°-39'W	CALM		124	10
2100	19-25W	105-22W	CALM		124	10
2200	19-20N	105-13W	CALM		124	10
2300	19-18N	105-05W	CALM		124	10
2400	19-11N	105-00W	CALM		124	10

Date 6/9/67Ship T-AP-177 ()Cruise No. 177-67-08

Organization _____

Recorder _____

Sunrise: Time 0531Position: Lat. 12° 17' N, Long. 89° 15' WSunset: Time 1815Position: Lat. 11° 23' N, Long. 88° 01' WMiles travelled from 0000 hours to sunrise = 56Miles travelled from sunrise to sunset = 101

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.				
2.				
3.				
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	12-43N	89-53W	250	8	126	10
0200	12-37N	89-45W	250	8	126	10
0300	12-31N	89-36W	260	10	126	10
0400	12-24N	89-27W	260	10	126	10
0500	12-19N	89-19W	240	10	120	10
0600	12-14N	89-11W	220	14	126	10
0700	12-08N	89-04W			126	10
0800	12-02N	88-56W	290	14	126	10
0900	12-14W	88-55W	240	14	126	10
1000	12-10N	88-55W	240	14	126	10
1100	12-05	88-55W	240	14	126	10
1200	12-00N	88-52W	240	25	126	10
1300	12-55N	88-44W	240	26	126	10
1400	12-49N	88-36W	230	27	126	10
1500	12-42N	88-28W	220	28	126	10
1600	12-35N	88-20W	220	29	126	10
1700	11-31N	88-12W	225	25	126	10
1800	11-26N	88-04W	270	18	126	10
1900	11-11N	87-55W	250	22	126	10
2000	11-04N	87-47W	250	22	126	10
2100	11-00N	87-39W	250	18	126	10
2200	11-05N	87-30W	250	18	126	10
2300	11-00N	87-23W	250	18	126	10
2400	10-55	87-18W	250	18	126	10

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	12-43N	89-53W	250	8	126	10
0200	12-37N	89-45W	250	8	126	10
0300	12-31N	89-36W	260	10	126	10
0400	12-24N	89-27W	260	10	126	10
0500	12-19N	89-19W	240	10	120	10
0600	12-14N	89-11W	220	14	126	10
0700	12-08N	89-04W			126	10
0800	12-02N	88-56W	290	14	126	10
0900	12-14W	88-55W	240	14	126	10
1000	12-10N	88-55W	240	14	126	10
1100	12-05	88-55W	240	14	126	10
1200	12-00N	88-52W	240	25	126	10
1300	12-55N	88-44W	240	26	126	10
1400	12-49N	88-36W	230	27	126	10
1500	12-42N	88-28W	220	28	126	10
1600	12-35N	88-20W	220	29	126	10
1700	11-31N	88-12W	225	25	126	10
1800	11-26N	88-04W	270	18	126	10
1900	11-11N	87-55W	250	22	126	10
2000	11-04N	87-47W	250	22	126	10
2100	11-00N	87-39W	250	18	126	10
2200	11-05N	87-30W	250	18	126	10
2300	11-00N	87-23W	250	18	126	10
2400	10-55	87-18W	250	18	126	10

0500 CHANGED FROM +6
ZONE TIME TO +5 Z.T.

Date 6/10/67 Ship T-AP-177 () Cruise No. 177-67-08

Organization Recorder

Sunrise: Time 0623 Position: Lat. 10°25'N, Long. 86°20'W

Sunset: Time 1856 Position: Lat. 9°04'N, Long. 84°33'W

Miles travelled from 0000 hours to sunrise = 62

Miles travelled from sunrise to sunset = 140

Miles travelled from sunset to 2400 hours =

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
--	-------------	-------------	----------	-----------

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	^{CS} Wave Dir.	^{SP} Wave Hgt.
0100	10-45N	87-09 W	270	14	126	10
0200	10-40N	87-00 W	270	12	126	10
0300	10-34N	86-52 W	260	11	126	10
0400	10-28N	86-44 W	260	10	126	10
0500	10-28'N	86-34 W	270	14	120	10
0600	10-28'N	86-24 W	270	14	120	10
0700	10-20'N	86-16 W	290	11	140	10
0800	10-12'N	86-09 W	290	11	133	10
0900	10-03N	86-00 W	290	8	133	10
1000	9-57N	85-53 W	290	8	133	10
1100	9-51N	85-43 W	240	8	120	10
1200	9-45N	85-35 W	300	10	120	10
1300	9-39N	85-25 W	300	9	120	10
1400	9-33N	85-15 W	300	8	120	11
1500	9-27N	85-05 W	300	8	127	11
1600	9-21N	84-55 W	300	8	127	11
1700	9-15'N	84-47 W	270	15	127	11
1800	9-09'N	84-40 W	230	12	127	10
1900	9-02'N	84-32 W	270	16	127	10
2000	8-55'N	84-24 W	220	14	127	10
2100	8-49 N	84-16 W	270	16	127	10
2200	8-43 N	84-08 W	270	16	127	10
2300	8-37 N	84-00 W	340	18	127	10
2400	8-31 N	83-52 W	340	18	127	10

45 TIME ZONE

Date 6/11/67

Ship T-AP-177()

Cruise No. 177-67-08

Organization _____

Recorder _____

Sunrise: Time 0614

Position: Lat. 70°49'N

Long. 82°58'W

Sunset: Time 1842

Position: Lat. 70°07'N

Long. 81°02'W

Miles travelled from 0000 hours to sunrise = 68

Miles travelled from sunrise to sunset = 151

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
--	-------------	-------------	----------	-----------

1. HALF HOURLY FIXES BY LAND BEARINGS

2.

3.

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
------	----------	-----------	-----------	----------	-----------	-----------

0100	8-25 N	83-45 W	250	12	127	11
0200	8-17 N	83-36 W	250	12	127	11
0300	8-11 N	83-27 W	290	10	127	11
0400	8-04 N	83-19 W	290	10	127	11
0500	7-57'N	83-09'W	290	15	127	11
0600	7-50'N	83-00'W	290	10	123	11
0700	7-45'N	82-51'W	290	10	123	11
0800	7-37'N	82-42'W	290	10	123	11
0900	7-31 N	82-33 W	270	12	123	10
1000	7-25 N	82-24 W	270	12	120	10
1100	7-19 N	82-15 W	270	12	120	10
1200	7-14 N	82-07 W	270	12	120	10
1300	7-09 N	81-58 W	290	10	120	10
1400	7-03 N	81-48 W	290	10	090	10
1500	7-02 N	81-39 W	270	8	090	10
1600	7-01 N	81-28 W	260	7	089	10
1700	7-07 N	81-19 W	200	8	089	10
1800	7-08'N	81-09'W	340	8	089	10
1900	7-07'N	80-59'W	340	8	085	10
2000	7-06'N	80-49'W	000	6	085	10
2100	7-07 N	80-41 W	CALM		085	8
2200	7-09 N	80-32 W	CALM		085	8
2300	7-10 N	80-24 W	CALM		064	8
2400	7-14 W	80-17 W	CALM		064	8

+5 TIME ZONE

Date 6/12/67 Ship T-AG 177 () Cruise No. 177-67-08
 Organization _____ Recorder _____

Sunrise: Time 0600 Position: Lat. 7°58'N, Long. 79°44'W

Sunset: Time _____ Position: Lat. _____, Long. _____

Miles travelled from 0000 hours to sunrise = 57 MI

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
--	-------------	-------------	----------	-----------

1.

2.

3.

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	SHIP DIR Wave Dir.	SHIP SPEED Wave Hgt.
------	----------	-----------	-----------	----------	-----------------------	-------------------------

0100						
0200						
0300						
0400	7°39'N	79°51'W	270	5	020	9
0500	7°48'N	79°48'W	270	5	020	10
0600	7°58'N	79°44'W	170	RS	020	10
0700	8°12'N	79°41'W	AIR S		020	10
0800	8°21'N	79°38'W	AIR S		030	10
0900	8°20'	36				
1000						
1100	Arrive Canal Zone					
1200						
1300						
1400						
1500						
1600						
1700						
1800						
1900						
2000						
2100						
2200						
2300						
2400						

Date 6/5/67 Ship () Cruise No. 177-67-08

Organization Recorder

Sunrise: Time 0420 Position: Lat. 18°40'N, Long. 104°14'W

Sunset: Time 1922 Position: Lat. 17°44'N, Long. 102°30'W

Miles travelled from 0000 hours to sunrise = 53

Miles travelled from sunrise to sunset = 118

Miles travelled from sunset to 2400 hours =

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
-------------	-------------	----------	-----------

1.

2.

3.

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
------	----------	-----------	-----------	----------	-----------	-----------

0100	19-08N	104-53W	320	5	126	10
0200	19-02N	104-45W	320	5	126	10
0300	18-57N	104-36W	320	5	126	10
0400	18-52N	104-30W	320	5	126	10
0500	18-46N	104-22W	305	2	126	10
0600	18-41N	104-16W	CALM		126	10
0700	18-33N	104-05W	060	7	126	10
0800	18-28N	103-58W	050	10	126	10
0900	18-25N	103-51W	CALM		126	10
1000	18-20N	103-44W	CALM		126	10
1100	18-13N	103-32	CALM		114	10
1200	18-10N	103-26W	180	5	114	10
1300	18-05N	103-17W	180	5	116	10
1400	18-03N	103-10W	180	5	116	10
1500	18-00N	103-03W	180	5	116	10
1600	17-56N	102-55W	180	5	116	10
1700	17-52N	102-47W	180	5	116	10
1800	17-49N	102-37W	270	10	116	10
1900	17-45N	102-27W	270	10	116	10
2000	17-42N	102-19W	250	10	116	10
2100	17-36N	102-07W	270	10	116	10
2200	17-31N	101-58W	270	10	116	10
2300	17-27N	101-49W	270	10	116	10
2400	17-22N	101-38W	270	10	116	10

ADVANCED
CLOCKS 20 MIN
ADVANCED
CLOCKS 20 MIN

SHIPS

SHIPS

ZONE TIME + 6

Date 6/6/67 Ship T-AG-177() Cruise No. 177-67-08

Organization _____ Recorder _____

Sunrise: Time 0607 Position: Lat. 16-57N, Long. 100-40W

Sunset: Time 1904 Position: Lat. 16°05'N, Long. 98°20'W

Miles travelled from 0000 hours to sunrise = 61 mi

Miles travelled from sunrise to sunset = 129 mi

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
--	-------------	-------------	----------	-----------

1.

2.

3.

4.

5.

Hourly Positions:

Time Latitude Longitude Wind Dir. Wind Sp. Wave Dir. Wave Hgt.

0100	17-18N	101-27W	000	20	118	10
0200	17-14N	101-18W	000	-	116	10
0300	17-09N	101-10W	000	-	116	10
0400	17-05N	101-00W	270	14	112	10
0500	17-03'N	100-51'W	270	14	112	10
0600	16-57'N	100-42'W	280	12	112	10
0700	16-43'N	100-31'W	6035 TO 50 KTS		112	10
0800	16-49'N	100-51'W	210	17	112	10
0900	16-47N	100-11W	270	12	114	10
1000	16-45N	99-54	270	12	114	10
1100	16-41N	99-49	270	12	114	10
1200	16-37N	99-39W	270	14	114	10
1300	16-33N	99-30W	270	14	114	10
1400	16-29N	99-21W	270	14	114	10
1500	16-25N	99-10W	260	15	114	10
1600	16-20N	99-00W	260	15	114	10
1700	16-15'N	98-50'W	260	15	114	10
1800	16-09'N	98-39'W	280	12	111	10
1900	16-05'N	98-27'W	280	10	111	10
2000	16-01'N	98-18'W	280	10	111	10
2100	15-55N	98-05W	280	12	111	10
2200	15-52N	97-56	280	12	111	10
2300	15-49N	97-47	280	12	104	10
2400	15-47	97-38W	280	12	104	10

Date 6-18-67Ship TAG 177Cruise No. 177-67-08

Organization _____

Recorder _____

Sunrise: Time 0629Position: Lat. 25°21'N, Long. 79°55'W

Sunset: Time _____

Position: Lat. _____, Long. _____

Miles travelled from 0000 hours to sunrise = 84

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
-------------	-------------	----------	-----------

1. HALF HOURLY BEARINGS

2.

3.

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
------	----------	-----------	-----------	----------	-----------	-----------

0100						
0200						
0300						
0400	24°51'N	80°14'W	190	10	039	14
0500	25°03'N	80°07'W	190	10	039	14
0600	25°15'N	80°01'W	165	20	030	14
0700	25°25'N	79°55'W	165	20	025	14
0800	25°42'N	79°53'W	165	20	025	14
0900	25°55'N	79°50	165	20	005	14
1000	26-10	79-49	165	20	005	14
1100	26-23	79-48	165	15	005	14
1200	26-34N	79-47W	160	15	005	15
1300	26-54	79-46W	160	16	005	15
1400	27-07N	79-45W	160	16	005	15
1500	27-22N	79-45W	160	16	005	15
1600	27-32N	79-44W	VAR.	-	005	15
1700	28-03	79-35			LAZY TO	RESCU-
1800	"	"				
1900	"	"				
2000	"	"				
2100	28-00	79-44W	160	17	225	5
2200	28-00	79-52W	160	17	240	5
2300	27-58	80-00W	160	17	205	5
2400	27-53	80-03	160		205	5

interpolated positions

Ba.

19 0000 27° 53' 80° 03'

0600 28° 11' 80° 03'

1000 28° 45'

1100 28° 54'

01200 29° 05' 80° 03'

1300 29° 14'

1400 29° 23'

1500 29° 32'

1800 29° 59' 80° 04'

20 0000 30° 53' 80° 04'

0600 31° 47' 80° 04'

0700 31° 56'

0800

1200 32° 45' 80° 05' Charleston S.C.

Date 6/7/67Ship T-AP-177 ()Cruise No. 177-67-08

Organization _____

Recorder _____

Sunrise: Time 0554Position: Lat. 15°34'N, Long. 96°42'WSunset: Time 1847Position: Lat. 15°20'N, Long. 94°42'WMiles travelled from 0000 hours to sunrise = 54 miMiles travelled from sunrise to sunset = 123

Miles travelled from sunset to 2400 hours = _____

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0200	PILOTING-VIS.	15-39 N	97-19 W
2.	1900	CELESTIAL	15°20'N	94°39'W
3.				
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	15-44N	97-30W	280	14	104	10
0200	15-39 N	97-19 W	280	13	104	10
0300	15-40N	97-10 W	280	12	104	10
0400	15-39N	97-02 W	280	12	104	10
0500	15°36'N	96°53'W	280	10	104	10
0600	15°33'N	96°44'W	280	6	104	10
0700	15°28'N	96°34'W	325	4	100	10
0800	15°26'N	96°18'W	000	6	100	10
0900	15-27 N	96-14 W	190	15	103	10
1000	15-25 N	96-05 W	090	15	103	10
1100	15-22 N	95-53 W	090	15	103	10
1200					103	10
1300						
1400						
1500	15-20°	95°20				
1600	15°20'N	95°10'W	140	7	104	10
1700	15°20'N	95°00'W	140	7	104	10
1800	15°20'N	94°49'W	220	8	104	10
1900	15°20'N	94°39'W	220	8	104	10
2000	15°12'N	94°28'W	200	5	108	10
2100	15-09 N	94-18 W	LT. AIRS		108	10
2200	15-06 N	94-09 W	LT. AIRS		108	10
2300	15 03 N	93-58 W	LT. AIRS		108	10
2400	15-00 N	93-48 W	LT. AIRS		108	10

ZONE TIME +6

Date 6/8/67 Ship T-AP-177 () Cruise No.

Organization Recorder

Sunrise: Time 0541 Position: Lat. 14°37'N, Long. 92°48'W

Sunset: Time 1830 Position: Lat. 13°29'N, Long. 91°03'W

Miles travelled from 0000 hours to sunrise = 62

Miles travelled from sunrise to sunset = 120

Miles travelled from sunset to 2400 hours =

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0520	CELESTIAL	14°37'N	92°50'W
2.	1900	CELESTIAL	13°20'N	90°41'W
3.				
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	SHIPS CS Wave Dir.	SHIPS SA Wave Hgt.
0100	14-56N	93-48W	CALM	—	108	10
0200	14-53N	93-28W	CALM	—	108	10
0300	14-50N	93-18W	LT AIRS	—	108	10
0400	14-47N	93-09W	LT AIRS	—	108	10
0500	14°39'N	92°55'W	LT AIRS		108	10
0600	14°36'N	92°45'W	LT AIRS		108	10
0700	14°31'N	92°35'W	100	8	121	10
0800	14°28'N	92°35'W	090	4	121	10
0900	14°21'	92°25'				
1000		15				
1100		05				
1200	14-07N	91-55W	120	5	127	10
1300	14-01N	91-47W	120	5	130	10
1400	13-55N	91-38W	120	7	130	10
1500	13-50N	91-30W	130	8	126	10
1600	13-44N	91-23W	120	8	126	10
1700	13-38N	91°16'W	200	8	126	10
1800	13°33'N	91°07'W	250	8	126	10
1900	13°30'N	90-41 W	235	6	126	10
2000	13°15'N	90-33 W	235	6	126	10
2100						
2200						
2300						
2400						

+5 TIME ZONE

Date 6/14/67 Ship T-AG-177 () Cruise No. 177-67-02

Organization Recorder

Sunrise: Time 0559 Position: Lat. 11°14'N, Long. 80°28'W

Sunset: Time 1851 Position: Lat. 13°09'N, Long. 81°08'W

Miles travelled from 0000 hours to sunrise = 59

Miles travelled from sunrise to sunset = 143

Miles travelled from sunset to 2400 hours =

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
--	-------------	-------------	----------	-----------

1.

2.

3.

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
------	----------	-----------	-----------	----------	-----------	-----------

0100	10-28 N	80-13 W	070	12	343	10
0200	10-35 N	80-17 W	070	12	343	12
0300	10-45 N	80-20 W	070	10	343	10
0400	10-55 N	80-22 W	070	10	343	10
0500	11-04 N	80-25 W	070	14	343	10
0600	11-14 N	80-28 W	090	15	343	10
0700	11-23 N	81-31 W	090	12	343	10
0800	11-33 N	80-34 W	090	12	343	10
0900	11-41	80-37 W	090	10	343	10
1000	11 51	80-40 W	090	10	343	10
1100	12-01 N	80-46 W	120	8	343	10
1200	12-10 N	80-49 W	120	7	343	10
1300	12-27 N	81-02 W	120	7	343	10
1400	12-36 N	81-04 W	120	7	343	10
1500	12-46 N	81-09 W	120	6	343	10
1600	12-57 N	81-11 W	120	6	343	10
1700	13-10 N	81-11 W	120	6	343	10
1800	13-20 N	81-09 W	120	6	343	10
1900	13-30 N	81-08 W	115	12	343	10
2000	13-41 N	81-11 W	115	12	343	10
2100	13-53 N	81-17 W	120	15	343	10
2200	14-03 W	81-20 W	120	15	343	10
2300	14-12 N	81-23 W	120	10	343	10
2400	14-22 N	81-28 W	120	10	343	10

T-A6-177

+5 TIME ZONE

Date 6/15/67Ship SHEARWATER()Cruise No. 177-67-08

Organization _____

Recorder _____

Sunrise: Time 0554Position: Lat. 15° 25' N, Long. 81° 46' WSunset: Time 1909Position: Lat. 17° 40' N, Long. 82° 50' WMiles travelled from 0000 hours to sunrise = 76Miles travelled from sunrise to sunset = 151

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.			
2.			
3.			
4.			
5.			

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir. ^{CS}	Wave Hgt. ^{SP}
0100	14-33 N	81-37 W	110	12	343	11
0200	14-43 N	81-34 W	110	12	343	11
0300	14-54 N	81-37 W	115	12	345	11
0400	15-05 N	81-40 W	120	14	345	11
0500	15-16 N	81-43 W	120	14	345	11
0600	15-26 N	81-47 W	120	12	345	11
0700	15-37 N	81-50 W	120	12	345	11
0800	15-47 N	81-54 W	120	12	345	11
0900	15-57 N	81-58 W	130	12	332	11
1000	16-09 N	82-00 W	130	12	332	11
1100	16-19 N	82-06 W	120	14	332	11
1200	16-29 N	82-14 W	110	14	332	11
1300	16-40 N	82-19 W	110	14	332	11
1400	16-49 N	82-25 W	120	14	332	11
1500	16-59 N	82-30 W	120	14	332	11
1600	17-09 N	82-36 W	130	14	332	11
1700	17-19 N	82-41 W	120	14	332	11
1800	17-29 N	82-47 W			332	11
1900	17-39 N	82-52 W			332	11
2000	17-49 N	82-58 W	160	14	332	11
2100	18-00 N	83-06 W	160	14	332	11
2200	18-10 N	83-12 W	160	14	332	11
2300	18-20 N	83-16 W	160	14	332	11
2400	18-30 N	83-22 W	160	14	332	11

T-AC-177

+5 TIME ZONE

Date 6/16/67Ship SWAMPWATER ()Cruise No. 177-67-08

Organization _____

Recorder _____

Sunrise: Time 0557Position: Lat. 19°30'N, Long. 83°52'WSunset: Time 1924Position: Lat. 21°37'N, Long. 85°05'WMiles travelled from 0000 hours to sunrise = 65Miles travelled from sunrise to sunset = 145

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
-------------	-------------	----------	-----------

1.

2.

3.

4.

5.

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	18-40 N	83-27 W	150	14	332	1
0200	18-50 N	83-32 W	160	14	332	1
0300	19-00 N	83-37 W	160	14	332	1
0400	19-10 N	83-42 W	160	14	332	1
0500	19-19 N	83-47	180	12	332	11
0600	19-29 N	83-53	180	12	332	11
0700	19-37 N	83-58	180	12	332	11
0800	19-48 N	84-04 W	180	15	334	11
0900	19-51 N	84-18 W	180	15	334	11
1000	20-00 N	84-22 W	180	15	334	11
1100	20-10 N	84-26 W	180	15	334	11
1200	20-21 N	84-30 W	180	15	334	11
1300	20-31 N	84-35 W	180	14	334	11
1400	20-42 N	84-40 W	180	14	334	11
1500	20-52 N	84-45 W	180	14	334	11
1600	21-03 N	84-50 W	180	16	334	11
1700	21-13 N	84-55 W	180	12	334	11
1800	21-23 N	84-59 W	150	10	334	11
1900	21-33 N	85-04 W	00	00	334	11
2000	21-43 N	85-08 W	150	10	334	11
2100	21-53 N	85-12 W	150	10	334	11
2200	22-03 N	85-16 W	150	10	334	11
2300	22-10 N	85-12 W	150	10	000	11
2400	22-13 N	85-12	150	15	000	1

+4 TIME ZONE

T-AG-177

Date 6/17/67 Ship SHEARWATER () Cruise No. 177-67-08

Organization _____ Recorder _____

Sunrise: Time 0651 Position: Lat. 22°54'N, Long. 84°17'W

Sunset: Time 2018 Position: Lat. _____, Long. _____

Miles travelled from 0000 hours to sunrise = 62

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

- 1.
- 2.
- 3.
- 4.
- 5.

Hourly Positions:

CS

SP

Time Latitude Longitude Wind Dir. Wind Sp. Wave Dir. Wave Hgt.

ADVANCED
CLOCKS
30 MIN

0100	22-14N	84-56W	140	20	043	10
0200	22-21N	84-49W	140	20	043	10
0300	22-29N	84-42W	146	20	043	10
0400	22-36N	84-35W	140	18	043	10
0500	22-43N	84-28W	140	20	043	10
0600	22-48N	84-23W	170	20	043	10
0700	22-55N	84-16W	170	20	043	10
0800	23-03N	84-08W	170	20	043	10
0900	23-09N	84-00W	170	20	070	11
1000	23-12N	83-50W				
1100	23-17N	83-40W				
1200	23-22N	83-30W	170	20	070	11
1300						
1400						
1500						
1600	23-34N	82-41W	131	25	078	11
1700	23-36N	82-47W	140	24	078	12
1800	23-38N	82-53W	150	16	078	12
1900	23-40N	83-00W	LT AIR S		078	12
2000	23-46N	81-40W	301	28	067	12
2100	23-51N	81-32W	300	20	067	13.6
2200	24-00N	81-20W	300	12	067	13.6
2300	24-05N	81-07W	AIR S		055	13.8
2400	24-12N	80-56W	AIR S		053	13.8

R. Chandler

PRELIMINARY REPORT

EASTERN AREA CRUISE #13

SAN FRANCISCO TO PANAMA CANAL

29 MAY TO 12 JUNE 1967

Prepared

by

Richard D. Chandler

Preliminary Report EAC #13
San Francisco to Panama Canal
29 May to 12 June 1967

Survey Itinerary:

29 May	1300	Depart Treasure Island, San Francisco
30 May	0647	Enter Eastern Grid at Point "Ash"
31 May	0708	Depart Eastern Grid at Point "Oak"
12 June	1300	Arrive Panama Canal
13 June	1800	Depart Panama Canal
20 June	1200	Arrive Charleston, South Carolina

Survey Personnel: Richard D. Chandler

Support Vessel : USNS Shearwater TAG-177

Three separate preliminary reports have been prepared for EAC #13. Eastern Grid Survey #8 covering observations between Points A and O of the Eastern Grid; EAC #13 Caribbean and Atlantic portions briefly covering observations from the Canal to Charleston, South Carolina; and this report, covering Pacific Ocean observations. Observations in the Eastern Grid area are also included in this report for the convenience of continuity.

Methods: Aside from the fact that observation time was restricted due to the presence of only one observer, survey methods were similar to previous cruises. Diurnal observations ranging from one-half to two hours in duration were scattered throughout the day as time permitted. Approximately 20 percent of the total diurnal mileage was spent logging observations. In addition to regular observations, cursory glances contributed to a general picture of the avifauna and reports from various crewmembers, especially Captain Gibson, were helpful in filling in gaps. I feel that in a cruise of this "pilot" nature where only the most general information is to be gained -- no more than a random one-third of the daylight hours need be spent logging observations. This is justifiably sufficient to allow the collected data to be significant. Above 50 percent logbook time, the returns are diminishing and for a one- or two-man scientific crew engaged in other associated work, inefficiency results.

The survey area is a rough ESE course paralleling the eastern coastline of the North Central Pacific Basin. The 3300-mile track covers 30 degrees of latitude and 40 degrees of longitude (37°N, 122°W to 7°N, 82°W). See Figure 1. Over the 372 miles of regular diurnal observations -- 8517 birds of at least 30 species were recorded. Thirteen birds of 8 species were collected.

The nature of this relatively straight point-to-point survey, covering wide latitudinal and longitudinal ranges, makes the data conducive to interpretation as a chainlike series of events. In the same way that a length of string can be cut up more ways across its axis than parallel to it, much of the data in this cruise is best presented in serial relationships showing variations along a line. A series of Tables has been constructed to demonstrate how this approach can express changes and other biological patterns of the birds under study.

In general, the tables presented in this appendix differ somewhat from most tables in surveys which cover a more restricted area or track. A discussion of each table should clarify the meaning and significance.

TABLE 1. Summary of Daily Observations

In order to simplify other tables, each of the 13 days on which regular observations were made, was assigned a number (1-13). Note that no regular observations were held on 6 June; this was due to illness of the observer. The mean linear density is high due to the influence of day #7. Only two daily linear densities exceed the mean. The median daily linear density of 5.4 birds/linear mile is perhaps a better measure of the central tendency. The "approximate distance to land" column is relevant to the "major species" column: above 75 miles major species are Storm Petrels, Albatross, Phalaropes, and Gadfly Petrels, with Terns, Boobies and Shearwaters found closer to land.

TABLE 2. Relative Abundance of Birds by Species

All species were not seen each day, therefore the overall linear density for any species is lower than the actual density for the area in which the species was present. The average linear density for days of occurrence is obtained by dividing the total birds seen by the total miles for those days that the species was recorded. The quotient obtained by dividing the occurrence density by the overall density would give a measure of clumping or concentration tendency. Thus, a restricted form such as Cooks Petrel measures about 5 units on an artificial scale whereas "White-rumped" Storm Petrel measures approximately 1 unit.

TABLE 3 presents a similar picture on a higher taxonomic level.

TABLE 4. Species Contributing 1% or More to Total Birds

This table gives a quick overall view of relative concentrations. Comparison with the occurrence rank again shows a relationship with clumping tendency.

TABLE 5. Regularity of Occurrence

This table is an expression of occurrence and measures both breadth of distribution or extent of range and regularity along the track.

TABLE 6. Location of Species

The median day of occurrence is not necessarily the peak density location; however, for the most part it agrees closely with day of max. lin. density. This table shows a reasonable transition from temperate to subtropical to tropical elements of the avifauna.

TABLE 7. Range of Species

An attempt is made to arrange the species according to restrictedness or broadness of range. The number of days of spread was determined by the number of days from first to last sighting. It is not a reliable indicator of broadness of range because it cannot account for ranges extending past either extreme. It is however useful in estimating some cases of "rareness," and does provide a measure of discontinuity. If the days spread figure is larger than the days seen figure, the difference is the relative amount of discontinuity. Sabines Gull, Dark-rumped Storm Petrel, Jaegers, and Red-billed Tropicbirds have discontinuity differences of 5 days or more in this instance. This should be interpreted as meaning these birds probably occur over at least all the indicated spread but are variable or so low in numbers that they are often not seen.

Starting with the assumption that one or more ecological zones were crossed, I attempted to determine where it or they were located as reflected by changes in the bird populations. If hypothetical ecological zones did exist they could be most easily delimited by locating their boundaries -- where they come together. At these boundaries I further hypothesized the following: 1) new (southern) species would appear; 2) linear density would increase; 3) daily species total would increase; and 4) northern species would disappear.

TABLE 8. Chronological Occurrence of Species

This table lists the day each species was seen. Appearances and disappearances were arbitrarily weighted according to importance as measured by the overall linear density.

TABLE 9. List of Species by Relative Importance

Primary species were weighted at 5 units, secondary at 3 units, and tertiary at 1 unit.

TABLE 11. Ecological Boundaries of Species

The weighted totals of appearances and disappearances for each day are shown in Table 11. The linear density for each day was assigned as positive, if higher than the median and as negative, if lower than the median. A comparison of the four columns revealed the four hypothesized boundary conditions were met on three occasions as indicated by brackets in Table 11. In spite of the highly artificial nature of the approach, comparison of these three areas with current charts showed that ocean features at the same locations were in transition states, and a positive correlation was obtained.

Boundary area A -- roughly centered at day 4 (mouth of the Gulf of California) is the approximate convergence area of the southeast-flowing California Current and the west-flowing north Equatorial Current.

Boundary area C, determined at days 10-11 at about 9°N, is at the region where the Equatorial countercurrent bifurcates to stream north and south.

Boundary area B is evidently an area of upwelling caused by the northward flowing tongue of the Equatorial countercurrent meeting the continental shelf. It is evidently rich in food as large schools of tuna and "dolphin" were associated with the bird flocks 10-20 miles off the coast. Some current charts would lump these hypothesized A and B divisions as being the two sides of a broad current transition area.

SPECIES ACCOUNTS

Black-footed Albatross

Total Observations - 17

One to six birds followed the ship for the first five days. Two birds were seen last about 1200 of 3 June (22°30'N, 110°00'W).

Laysan Albatross

Total Observations - 1

One "White Goony" was reported by the chief engineer on 31 May. I take the observations as valid.

Sooty Shearwater

Total Observations - 49

Slender-billed Shearwater

?

"Numbers" of Sooty Shearwaters were observed shortly out of San Francisco and around Monterey Bay. None were recorded during 30 and 31 May, perhaps due to the greater distance from the coast. Birds were fairly regular again off Baja, California, and down to about 15°N along the Mexican coast. Sooties were regularly mixed in with the large Manx Shearwater flocks and many were seen from the skiff on 5 June. With little hesitation I feel 95+ percent of the Sooty/Slender-bill types were indeed Sooty. A single bird, glimpsed in a flock on 5 June, was probably a slender-bill; but this was the only one observed during careful scrutiny of the Sooties.

Wedge-tailed Shearwater

Total Observations - 619

The first Wedge-tail appeared in boundary zone A at the mouth of the Gulf of California (ca. 23°N). The bulk of the observations were made in the Manx Shearwater flocks off the Manzanilla-Acapulco area on 5 June. In this area light-phase birds outnumbered dark-phase (5 to 1). Birds were seen as far south as Panama where a light-phase bird was recorded.

Pale-footed Shearwater

Total Observations - 81

A flock of ca. 80 birds was following 20 ⁺ whales off the coast of El Salvador on 9 June. Another single bird, thought to be this species, was seen off Panama on the 11th.

Manx Shearwater
 "Manx Type Shearwater

{ Total Observations - 5,193

The large flocks of Manx Shearwaters observed on 5 June within 15 miles of the Manzanilla/Acapulco coast account for nearly 60 percent of the total birds (all species) seen. Feeding flocks of 500-plus birds were encountered at 2-3 mile intervals during an afternoon of skiff work there. Birds were clumped densely on the water surface and appeared to be feeding actively. Most birds were in obvious molt with gaps showing in the flight feathers. Birds of the Manx/Audubon's type were regularly seen from the Gulf of California to the Gulf of Panama. While I believe that most of the Manx types seen were indeed Manx, several times I suspected that Audubons were present. No Audubons were positively identified, however.

Christmas (Island) Shearwater
Puffinus Nativitatis

Total Observations - 20

I can find no previous record of this species for the eastern Pacific coast. Each of the large feeding flocks of Manx Shearwaters investigated off the coast on 5 June seemed to have 1-3 of these birds. One female with a granular ovary was collected. Without the use of the skiff I am confident this species would have been completely overlooked.

Cooks Petrel

Total Observations - 184

Cooks Petrel was the dominant species observed between Guadalupe Island and the tip of Baja, California. Several large flocks were found milling about on the water near what appeared to be the edge of rising water cells. Storm Petrels were also plentiful in these flocks. One female with granular ovary was taken the first of June. Most birds were in heavy wing molt with confusing white patches and streaks visible from above.

Leachs Storm Petrel

Oceanodroma leucorhoa

North of about 12°N most of the "White-rumped" Storm Petrels are probably this species. For three days in the vicinity of Guadalupe Island the dark-rumped population, O. l. socorroensis, was present at about one-fifth the density of the white-rumped form. One female socorroensis with enlarged gonads was collected approximately 40 miles south of Guadalupe Island on 1 June. After a 1,500-mile gap "Dark-rumped" Storm Petrels were again seen off Panama. It is possible that these were Least Storm Petrels.

Galapagos Storm Petrel

Oceanodroma tethys

When three days out of Panama "White-rumped" Storm Petrel sightings increased again after a dropping off from the Leachs peak off Lower Baja. On 9 June "White-rumped" Storm Petrels were noted following the ship's wake and by 11 June up to 25 at a time were following astern. Most, if not all, of the "White-rumped" sightings below about 12°N are likely this species. I have seen no mention of ship-following tendencies in other sources.

Black Storm Petrel
(Oceanodroma melania)

Total Observations - 83

Pronounced ship followers, these birds usually showed a gradual buildup astern during the day. After a peak in the area just south of the mouth of the Gulf of California, a broad gap of some 1200 miles passed with only a single sighting. From Coast Rica to Panama, however, the birds were again present in good numbers. While I see no mention in the literature, this discontinuity suggests to me that when the breeding population returns to the breeding grounds in northern Baja, a nonbreeding segment of the population (immatures ?, first-year birds?) remains in the southern end of the species range.

Least Storm Petrel

Halocyptena microsoma

One bird was tentatively recorded as this species on 2 June. Two "Dark-rumped" Storm Petrels seen off Panama may have been this species as well.

Red-billed Tropicbird

Total Observations - 6

The six birds, scattered from the second to the twelfth day, indicate the broad range and low relative numbers of this bird. Three birds were seen in conjunction with the large Manx flocks on 5 June. Birds were heard calling at sea.

Brown Booby

Total Observations - 118

The Brown was the first Booby to appear and high numbers were logged when close to the coast on 4 and 5 June. Many immatures, 50-75 percent, were seen in the Manx flocks, and others were found riding turtles. After a 700-mile absence, browns were again common off Coast Rica and Panama where proportionally more adults were observed.

Red-footed Booby

Red-foots were first logged on 7 June, but were probably present on the sixth as well, off Acapulco. No birds were seen after the ninth when a "great many" appeared. Most sightings were of non-adult birds. I did not see any white adults to my knowledge.

Blue-faced Booby

Total Observations - 11

Blue-faced Booby showed the same type of occurrence as the Red-foot; appearing and disappearing in the same three-day span. Most sightings were of adults.

Frigatebird Species

Total Observations - 28

Only one bird was observed well enough to positively identify as a Magnificent, however, all were presumed to be that species. The first bird was sighted off northern Costa Rica. Twenty of the 28 birds were seen in the Gulf of Panama.

Red Phalarope

Red Phalaropes were seen on May 30 and 31 from the Eastern Grid area to Guadalupe. Nocturnal watch north of Guadalupe disclosed many Phalaropes, most of which, I feel, were Reds. (See also comments in Eastern Grid #8 Report.)

Northern Phalarope

"Flocks" of Northern Phalaropes were seen in the Monterey Bay area on 29 May. A single bird, probably this species, was seen at the mouth of the Gulf of California on 4 June.

Jaeger Sp.

Total Observations - 21

Birds were recorded from Day one to Day 11 but the peak area was the offshore region where the Manx flocks congregated. Most large feeding flocks in this peak density area contained 1-3 Jaegers, which repeatedly "charged" the skiff as the flock was neared. One adult Pomarine in the Grid was positively identified. A long-tailed immature was collected from the peak area; I suspect the bulk of the Jaeger sp. were this species.

Skua

Total Observations - 3

Three birds, also associated with the Manx flocks, were seen on 5 July.

Common (Brown) Noddy Tern
(Anous stolidus)

Total Observations - 49

Two birds were recorded on the outside coast of Panama; the rest were seen in the Gulf of Panama where it is common.

Black Tern

Total Observations - 265

Black Terns were logged every other day beginning 5 June, and last seen in the Gulf of Panama. Of the 160 birds estimated in the Manzanillo region 80-90 percent were in nonbreeding plumage. Unlike most birds in this large feeding area, Black Terns were not usually in the company of the Shearwater flocks, but rather formed smaller flocks, sometimes with Sooty Terns. The bird is common in the Gulf of Panama, there often associating with Common Noddy.

Sooty Tern

Total Observations - 900

Sooties appeared at about 20°N and peak counts were obtained in conjunction with the Manx flocks on 5 June. Doubtless they were present on 6 June and possibly were among a distant flock seen on 7 June. South of this 1,000-mile stretch no further birds were seen. A bird collected on 5 June had very small testes and heavy molt in all tracts.

Arctic (?) Tern

Total Observations - 1

A possible Arctic sighting is covered in the Grid report (30 June).

Common (?) Tern

Total Observations - 5

One bird on 8 June and four birds in the Gulf of Panama were of the Arctic/Common/Forster type but since Common is the bird most likely to be in these waters the observations are almost surely of this species. The Panama birds were in nonbreeding plumage.

Sabines Gull

Total Observations - 10

A pair and a group of six birds were in the coastal feeding areas on 5 June. A pair was observed inside the Gulf of Panama; no dark heads were noted on these birds.

Ring-billed Gull
(Larus delewarensis)

Total Observations - 1

A single bird with remnants of dark on the head but otherwise adult plumaged was attracted to the ship off western Panama.

Xantus (?) Murrelet

During a nocturnal watch, north of Guadalupe Island, several (10⁺) Alcids were seen in an hour's time. It is presumed to have been this species.

Marine Mammals

Porpoises and whales were frequently seen from the Gulf of California south to Coast Rica. The Gulf of Tehuantepec was particularly rich. Nightly from 5-10 June porpoise were seen riding the bow wave.

One seal/sea lion sp. was seen 60 miles northwest of Guadalupe Island.

Further information and complete sightings can be found in the original log sheets.

Turtles

Sea Turtles (Green?) were common on 4 June off Cabo Corriente. Many (5/hr.) were sunning in the calm ocean. About one-half of the sightings were noted with birds perched on the exposed carapace. Black Terns and Brown Boobies were seen riding. Turtle sightings diminished slightly on 5 June and after that only one turtle was seen (11 June). A clasping pair was seen and approached in the skiff on 5 June. Evidently a pair in coitus cannot dive. While attempting to noose them, manipulation with a boat hook finally broke the males hold and both dove.

TABLE #1. SUMMARY OF DAILY OBSERVATIONS, EAC 13, 30 MAY-12 JUNE, 1967. SAN FRANCISCO TO PANAMA

Day No.	Date	No. Miles	No. Hours	No. Birds	No. Spec.	Lin. Dens.	Approx. Dist. to Land	Noon Position	Major Species
1	30 May	87	8.75	55	6	.63	75	34°07'N;121°46'W	White-rumped Storm Petrel, Black-footed Albatross
2	31 May	60	6.00	74	4	1.2	120	30°24'N;120°10'W	White-rumped Storm Petrel, Red Phalarope
3	1 June	35	3.50	226	5	6.5	100	27°21'N;116°53'W	Cooks Petrel, White-rumped Storm Petrel
4	2 June	20	2.0	119	6	5.4	50	25°17'N;113°36'W	Cooks Petrel, Black Storm Petrel
5	3 June	15	1.50	18	6	1.2	30	22°35'N;110°00'W	Black Storm Petrel
6	4 June	23	2.25	31	10	1.3	120	20°05'N; 106°40'W	White-rumped Storm Petrel
7	5 June	48	4.75	6978	13	150.	10	18°10'N;103°26'W	Manx Shearwater, Sooty Tern
8	7 June	15	1.50	337	4	22.	50	15°20'N;95°45'W	Manx Shearwater, Red-footed Booby
9	8 June	18	1.75	44	8	2.4	60	14°07'N;91°55'W	Black Tern, Blue-faced Booby
10	9 June	13	1.25	96	5	7.4	20	12°00'N;88°52'W	Pale-footed Shearwater
11	10 June	18	1.75	249	8	13.6	15	09°45'N;85°35'W	Brown Booby, White-rumped Storm Petrel
12	11 June	15	1.50	75	9	5.0	15	07°14'N;82°07'W	White-rumped Storm Petrel, Black Storm Petrel
13	12 June	5	.50	175	9	35.	15	Canal Zone	Black Tern, Common Noddy Tern
		372	37.0	8517	26	22.9			

TABLE #2. RELATIVE ABUNDANCE OF BIRDS BY SPECIES, EAC 13, 30 MAY-12 JUNE, 1967.
SAN FRANCISCO TO PANAMA

Species	No. Seen	Avg. Lin. Dens. for Days of Occurrence Only	Overall Linear Density
Black-footed Albatross	17	.08	.04
Laysan Albatross	1	.02	--
Sooty Shearwater	49	.35	.13
Wedge-tailed Shearwater	619	5.10	1.66
Pale-footed Shearwater	81	6.6	.22
Pink-footed Shearwater	1	.05	--
Manx (and Manx-type) Shearwater	5193	38.7	14.6
Christmas Shearwater	20	.42	.05
Shearwater sp.	3	--	.01
Cooks Petrel	184	2.6	.49
Shearwater/Petrel	5	--	.01
White-rumped Storm Petrel	271	.82	.73
Dark-rumped Storm Petrel	27	.21	.07
Black Storm Petrel	83	.53	.22
Least Storm Petrel	1	.05	--
Storm Petrel sp.	52	.16	.14
Red-billed Tropicbird	6	.03	.02
Brown Booby	118	1.08	.32
Red-footed Booby	5	.18	.01
Blue-faced Booby	11	.24	.03
Booby sp.	5	--	.01
Frigate sp.	28	.50	.08
Red Phalarope	19	.13	.05
Phalarope sp.	7	--	.02
Pomarine Jaeger	1	--	--
Long-tailed Jaeger	1	--	--
Skua	3	.06	.01
Common (Brown) Noddy Tern	49	2.4	.13
Black Tern	265	3.0	.71
Sooty Tern	900	13.	2.32
Tern sp.	10	--	.03
Sabines Gull	10	.19	.03
Gull sp.	1	--	--
Bird sp.	451	--	1.22
8517			22.9

TABLE #3. OCCURRENCE OF BIRDS BY SPECIES GROUPS, EAC 13, 30 MAY-12 JUNE, 1967
SAN FRANCISCO TO PANAMA

Group	No. Seen	% Total Birds	Overall Linear Density	Avg. Lin. Dens. for Days of Occurrence Only
Albatross	18	0.2	.04	.08
Shearwater	5966	70.0	16.0	26.5
Gadfly Petrel	184	2.2	.49	2.6
Shearwater/Petrel	6155	72.3	16.6	27.4
"White" & "Dark" & Storm Petrel sp.	350	4.1	.94	.94
All Storm Petrels	434	5.1	1.2	1.2
Tropicbird	6	0.1	.02	.03
Booby	139	1.6	.37	1.2
Frigate	28	0.3	.08	.50
Phalarope	26	0.3	.07	.15
Jaeger (& Skua)	24	0.3	.06	.12
Tern	1224	14.4	3.28	6.30
Gull	11	0.1	.03	.16
8517			22.9	

TABLE #4. SPECIES CONTRIBUTING 1% OR MORE TO TOTAL BIRDS, EAC 13,
30 MAY -12 JUNE 1967. SAN FRANCISCO TO PANAMA

Species	%	Occurrence Rank	(# days seen of 13 possible days)
Manx Shearwater	61.0	7	
Sooty Tern	10.6	2	
Wedge-tailed Shearwater	7.2	5	
White-rumped Storm Petrel	3.2	11	
Black Tern	3.1	4	
Cooks Petrel	2.2	3	
Brown Booby	1.4	5	
Black Storm Petrel	1.0	7	
	89.7		

TABLE #5. REGULARITY OF OCCURRENCE -- Ranking by # of days seen (4 or more days)
EAC 13, 29 MAY-12 JUNE 1967. SAN FRANCISCO TO PANAMA

Species	# Days Seen
White-rumped Storm Petrel	11
Manx Shearwater	7
Black Storm Petrel	7
Black-footed Albatross	5
Sooty Shearwater	5
Wedge-tailed Shearwater	5
Brown Booby	5
Jaeger sp.	5
Red-billed Tropicbird	5
Frigate sp.	4
Black Tern	4
Dark-rumped Storm Petrel	4

TABLE #6. LOCATION OF SPECIES, EAC 13, 29 MAY-12 JUNE 1967.
SAN FRANCISCO TO PANAMA

Median Day of Occurrence	Day of Maximum Linear Density
2. Laysan Albatross	2. Laysan Albatross
Phalarope sp.	Phalarope sp.
3. Black-footed Albatross	Black-footed Albatross
4. Cooks Petrel	3. Cooks Petrel
Dark-rumped Storm Petrel	Dark-rumped Storm Petrel
Least Storm Petrel	White-rumped Storm Petrel
5. Sooty Shearwater	4. Least Storm Petrel
6. Pink-footed Shearwater	Black Storm Petrel
7. Wedge-tailed Shearwater	6. Pink-footed Shearwater
Manx Shearwater	7. Sooty Shearwater
Christmas Shearwater	Wedge-tailed Shearwater
White-rumped Storm Petrel	Manx Shearwater
Black Storm Petrel	Christmas Shearwater
Red-billed Tropicbird	Red-billed Tropicbird
Jaeger sp.	Skua
Skua	Sooty Tern
Sooty Tern	Sabines Gull
Sabines Gull	8. Red-footed Booby
8. Red-footed Booby	9. Blue-faced Booby
9. Blue-faced Booby	10. Pale-footed Shearwater
Black Tern	11. Jaeger sp.
10. Pale-footed Shearwater	Brown Booby
11. Brown Booby	13. Frigate sp.
Frigate sp.	Common (Brown) Noddy Tern
13. Common (Brown) Noddy Tern	Black Tern

TABLE #7. RANGE OF SPECIES, EAC 13, 29 MAY-12 JUNE, 1967.
SAN FRANCISCO TO PANAMA

# Days Spread	Species	First Seen	# Days Seen
1	Laysan Albatross	2	1
	Pink-footed Shearwater	6	1
	Christmas Shearwater	7	1
	Least Storm Petrel	4	1
	Skua	1	1
2	Red Phalarope	1	2
	Common (Brown) Noddy Tern	12	2
	Sooty Tern	6	2
3	Pale-footed Shearwater	10	2
	Red-footed Booby	8	2
	Cooks Petrel	3	3
	Blue-faced Booby	8	3
5	Frigate sp.	9	4
	Black-footed Albatross	1	5
	Sooty Shearwater	3	5
7	Sabines Gull	7	2
	Black Tern	7	4
	Wedge-tailed Shearwater	5	5
8	Manx Shearwater	6	7
	Brown Booby	6	5
11	Dark-rumped Storm Petrel	2	4
	Jaeger sp.	1	5
	Black Storm Petrel	3	7
12	Red-billed Tropicbird	1	5
13	White-rumped Storm Petrel	1	11

TABLE #8. CHRONOLOGICAL OCCURRENCE OF BIRD SPECIES, EAC 13, 29 MAY-12 JUNE, 1967
SAN FRANCISCO TO PANAMA

<u>Appearances</u>		<u>Disappearances</u>	
<u>Seen First On</u>		<u>Seen Last On</u>	
<u>Day #</u>		<u>Day #</u>	
1	Black-footed Albatross	13	Manx Shearwater
	White-rumped Storm Petrel		White-rumped Storm Petrel
	Red-billed Tropicbird		Black Storm Petrel
	Phalarope sp.		Brown Booby
	Jaeger sp.		Frigate sp.
2	Laysan Albatross		Common (Brown) Noddy Tern
	Dark-rumped Storm Petrel		Black Tern
3	Sooty Shearwater		Sabines Gull
	Cooks Petrel	12	Pale-footed Shearwater
	Black Storm Petrel		Dark-rumped Storm Petrel
4	Least Storm Petrel		Red-billed Tropicbird
5	Wedge-tailed Shearwater	11	Wedge-tailed Shearwater
6	Pink-footed Shearwater		Jaeger sp.
	Manx Shearwater	10	Red-footed Booby
	Brown Booby		Blue-faced Booby
	Sooty Tern	7	Sooty Shearwater
7	Christmas Shearwater		Christmas Shearwater
	Skua		Skua
	Black Tern		Sooty Tern
	Sabines Gull	6	Pink-footed Shearwater
8	Red-footed Booby		Phalarope sp.
	Blue-faced Booby	5	Black-footed Albatross
9	Frigate sp.		Cook's Petrel
10	Pale-footed Shearwater	4	Least Storm Petrel
12	Common Noddy Tern	2	Laysan Albatross

TABLE #9. LIST OF SPECIES BY RELATIVE IMPORTANCE, EAC 13,
29 MAY-12 JUNE 1967. SAN FRANCISCO TO PANAMA

Primary Species (Linear Density with a digit before the decimal point)

Manx Shearwater

Sooty Tern

Wedge-tailed Shearwater

Secondary Species (Linear Density with first digit in the first decimal place)

White-rumped Storm Petrel

Black Tern

Cooks Petrel

Black Storm Petrel

Sooty Shearwater

Pale-footed Shearwater

Brown Booby

Common Noddy Tern

Tertiary Species (Linear Density with first digit in the second decimal place)

Frigate sp.

Dark-rumped Storm Petrel

Christmas Shearwater

Albatross sp.

Red-billed Tropicbird

Red-footed Booby

Blue-faced Booby

Sabines Gull

Phalarope sp.

Jaeger sp.

TABLE #10. LIST OF SPECIES GROUPS BY IMPORTANCE, EAC 13
29 MAY-12 JUNE. SAN FRANCISCO TO PANAMA

Primary Groups (Overall linear density with a digit before the decimal)

Shearwaters

Terns

Storm Petrels

Secondary Groups (Overall linear density with first digit in the first decimal place)

Gadfly Petrels

Boobies

Tertiary Groups (Overall linear density with first digit in the second decimal place)

Phalaropes

Jaegers

Frigates

Albatrosses

Tropicbirds

Gulls

TABLE #11. ECOLOGICAL BOUNDARIES OF SPECIES, EAC #13
29 MAY-12JUNE, 1967. San Francisco to Panama

Day	Appearance	Disappearance	# Species	Linear Density
1	--	0	6	-
2	3	1	4	-
3	9	0	5	+)
4	1	1	6	+) A
5	3	4	6	-)
6	14	1	10	-)
7	6	10	13	+) B
8	2	0	4	+
9	1	0	8	-
10	3	0	5	+)
11	0	2	8	+) C
12	3	6	9	-
13	0	3	9	+

TABLE #12. BIRDS COLLECTED, EAC 13, 29 MAY-12 JUNE 1967.
SAN FRANCISCO to PANAMA

Species	No. Collected	Date Collected
Manx Shearwater	3	5 June
Christmas Shearwater	1	5 June
Wedge-tailed Shearwater	1	5 June
Cooks Petrel	1	1 June
Leach's Storm Petrel	1	31 May
"Socorro" Storm Petrel	1	1 June
Sooty Tern	1	5 June
Black Tern	3	5 June



ATMOSPHERIC TEMPERATURES

The normal atmospheric temperatures for the month are shown by isotherms (in dotted red lines) on the main body of the chart and are expressed in degree Fahrenheit.

FIG. 1 CRUISE TRACK
EAC #13
30 MAY - 12 JUNE 1967
(NOON POSITIONS)

PRELIMINARY REPORT

EASTERN GRID SURVEY 8 (EAC 13)

30-31 May 1967

Prepared by

Richard D. Chandler

PRELIMINARY REPORT
EASTERN GRID SURVEY 8
30-31 May 1967

Survey Period : 0657, 30 May to 0708, 31 May 1967

Survey Personnel: Richard D. Chandler

Support Vessel : USNS SHEARWATER T-AG-177

This report summarizes observations made on a single north to south transect through the extreme eastern side of the Eastern Grid Area. The survey was included as a portion of Eastern Area Cruise #13 en route from San Francisco to the Panama Canal. The vessel entered the Grid at point "Ash" and proceeded SSE to point Oak. The track passed 11-24 miles to the west of the remaining eastern points. (See Figure 1.) Diurnal coverage included the north, central, and south sections. (See Table 1.)

Seventy birds of six species were observed over the 96-mile Grid track. Storm Petrels accounted for 63 percent of the total birds, Phalaropes 22 percent, and Black-footed Albatrosses - 12 percent. The remaining 3 percent consisted of 1 Red-billed Tropicbird, 1 Pomarine Jaeger, and 1 Tern.

Unusually high winds and seas made for poor observing conditions. The watch was held from the bridge. No BT drops were made in the Grid due to the rough following seas. No nocturnal watch was held. No birds were collected. Except for the reduced watch coverage necessitated by a single observer, other survey methods were as per previous cruises.

SPECIES ACCOUNT

Black-footed Albatross Diomedea nigripes - 8

At least two of the birds were noted as having white rumps. Statistically, dealing with this species is somewhat frustrating and no fool-proof method of handling Albatross data is at hand. Early morning observations suggest that birds gradually build up to a peak after only a few hours, after which the count of birds following the ship levels off for the rest of the day. It seems most feasible that a dynamic turnover of birds is taking place constantly and that a saturation level is reached which is dependent on the actual density of the area. Peak day counts on the whole, are the most satisfactory way to report Albatross occurrence although the number is lower than the number of individuals actually seen.

White-rumped Storm Petrel	42
Storm Petrel sp.	2
	<hr/>
	44

With fair certainty all Storm Petrel sightings can be taken as Leachs

Storm Petrels. The extreme north end of the northern section (25 miles of observations) and the southern section surveyed were low-density areas. The density increased in the southern part of the north section and remained high through the central section. On both sides of the 33°45'N parallel which separates the north and central section, fairly high numbers of Storm Petrels were found associated with Velella (Windsailers) concentrations.

Red-billed Tropicbird

Phaethon aethereus - 1

This is the second and northernmost record for this species in the Grid area. The bird was observed investigating flotsam in the Velella concentration at the boundary between the north and central section. It had a moderately long tail.

Red Phalarope
Phalarope sp.

Phalaropus fulicarius - 11
4
15

While three-fourths of the phalaropes were recorded from the south section and none from the north section this should not necessarily be taken as a function of latitude. Rather, I feel, the apparent relative densities are due more to the distance from land. The southern section was surveyed at around 200 miles from land whereas the north and central sections were 100 (or less) miles from land. I suspect all phalaropes seen were reds.

Pomarine Jaeger

Stercorarius pomarinus - 1

An adult bird was recorded flying north in the central section.

Sterna sp.

1

The single bird seen heading north was in the same Velella concentration as previously noted. The bird appeared gray below, and was tentatively identified as an Arctic.

(No mammals were recorded from the Grid.)

TABLE 1. Summary of Cruise Data in Sections, Eastern Grid Survey #8, 30-31 May 1967

	<u># Hrs. of Obs.</u>	<u># Miles of Obs.</u>	<u># Birds</u>	<u># Species</u>
North	4.95	50	35	3
Central	3.45	35	24	5
South	1.10	11	15	3
Total	9.50	96	70	6

TABLE 2. Summary of Grid Observations, Eastern Grid #8, 30-31 May 1967

	<u>North Section</u>					<u>Central Section</u>					<u>South Section</u>					<u>Total</u>			
	# Obs.	% of Spec.	% of Sec.	Lin. Dens.	#/Sq. Mi.	# Obs.	% of Spec.	% of Sec.	Lin. Dens.	#/Sq. Mi.	# Obs.	% of Spec.	% of Sec.	Lin. Dens.	#/Sq. Mi.	# Obs.	# Tot.	Lin. Dens.	#/Sq. Mi.
Black-footed Albatross	6	75	17	.120	.030	4	50	17	.114	.029*	2	25	13	.182	.042	8	12	.084	.021
White-rumped Storm Petrel	26	62	74	.520	.520	14	33	58	.400	.400	2	5	13	.182	.182	42	60	.438	.438
Storm Petrel sp.	2	100	6	.040	.040	0	0	0	.0	.0	0	0	0	.0	.0	2	3	.021	.021
Total Storm Petrel	28	64	80	.560	.560	14	32	58	.400	.400	2	4	13	.182	.182	44	63	.459	.459
Red-billed Tropicbird	0	0	0	.0	.0	1	100	4	.029	.015	0	0	0	.0	.0	1	1	.010	.005
Red Phalarope	0	0	0	.0	.0	4	36	17	.114	.228	7	64	47	.638	1.276	11	16	.115	.230
Phalarope sp.	0	0	0	.0	.0	0	0	0	.0	.0	4	100	27	.364	.728	4	6	.044	.088
Total Phalarope	0	0	0	.0	.0	4	27	17	.114	.228	11	73	74	1.000	2.000	15	22	.156	.312
Pomarine Jaeger	0	0	0	.0	.0	1	100	4	.029	.029	0	0	0	.0	.0	1	1	.010	.010
Tern sp.	1	100	3	.020	.010	0	0	0	.0	.0	0	0	0	.0	.0	1	1	.010	.005
TOTAL	35	50	100	.700		24	34	100	.685		15	21	100	1.363		70	100	.730	

*NOTE: The 4 Albatrosses under Central Section are here treated as 4 of the 6 individuals which followed from the North Section.

EASTERN PACIFIC OCEAN

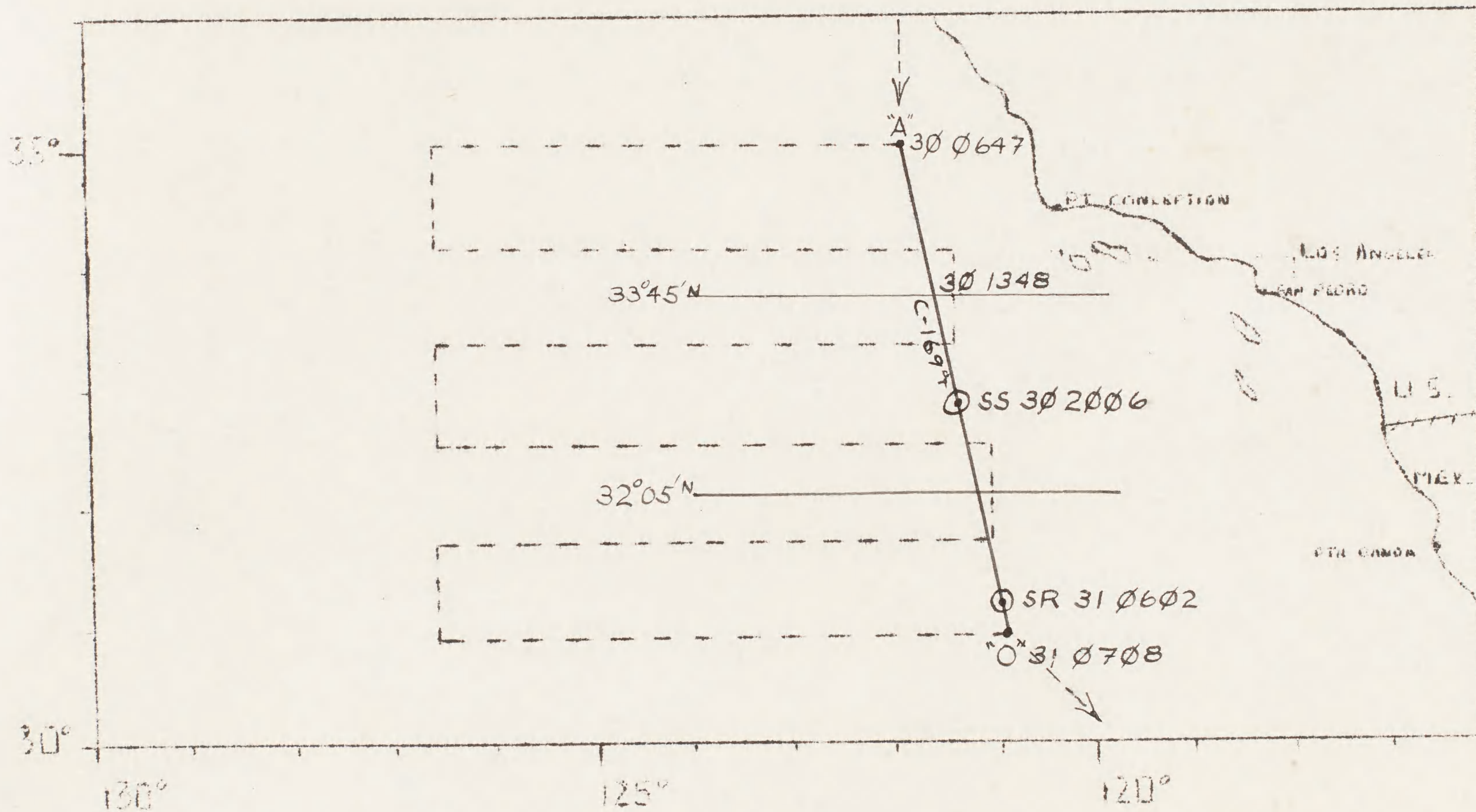
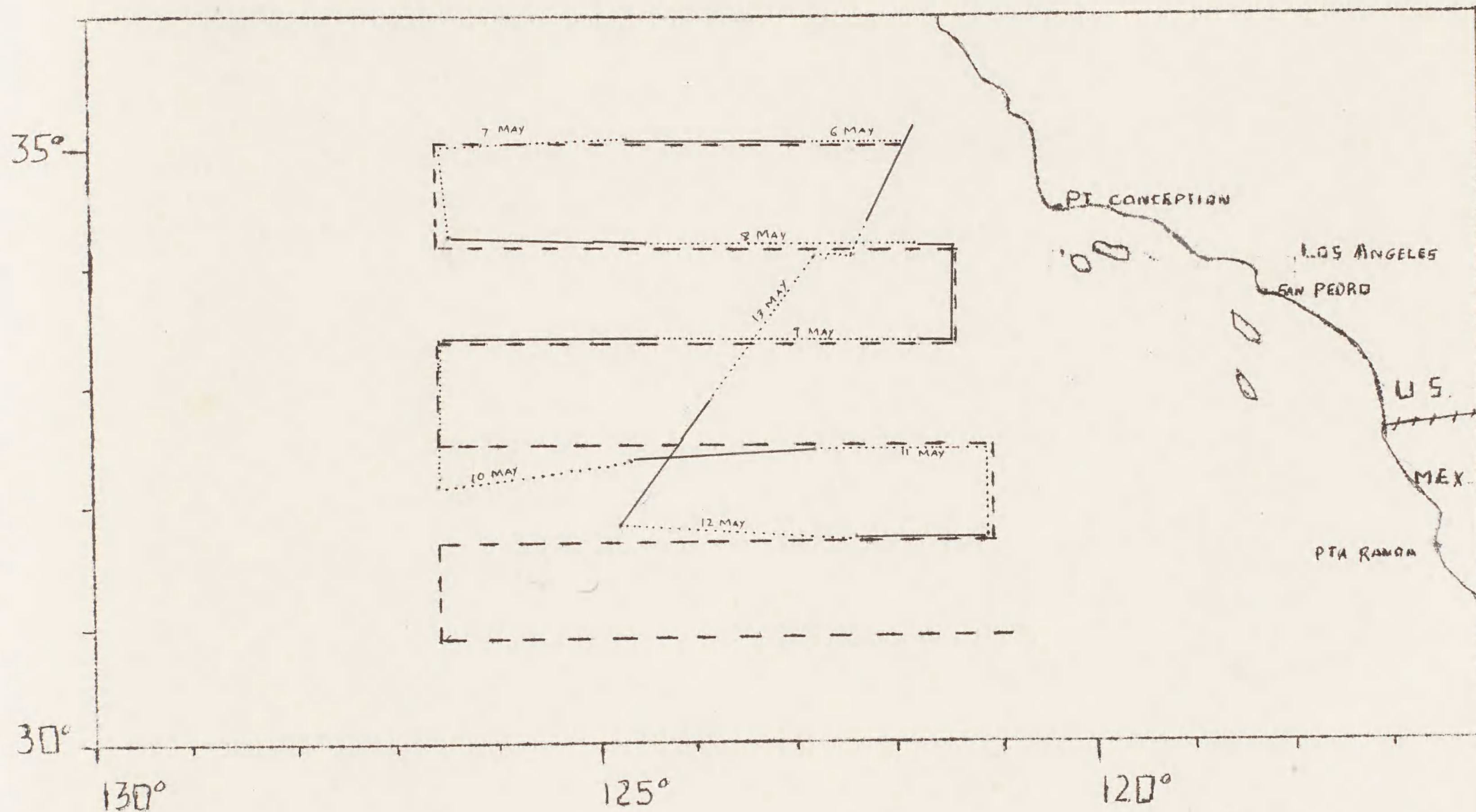


FIG. #1. CRUISE TRACK, EASTERN GRID SURVEY #8, 30-31 MAY 1967

EASTERN PACIFIC OCEAN



MAP 1: EASTERN GRID CRUISE PLAN AND TRACK, EASTERN AREA CRUISE 12 AND EASTERN GRID CRUISE 7, MAY 1967